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FIG. 1A. DNA SEQUENCE OF HIGH MOLECULAR WEIGHT PROTEIN

I (HMW1)

1	ACAGCGTTCT	CTTAATACTA	GTACAAACCC	ACAATAAAAT	ATGACAAAACA
51	ACAATTACAA	CACTTTTT	GCAGTCTATA	TGCAAATATT	TTAAAAAATA
101	GTATAAATCC	GCCATATAAA	ATGGTATAAT	CTTCATCTT	TCATCTTTCA
151	TCTTTCATCT	TTCATCTTTC	ATCTTTCATC	TTTCATCTT	CATCTTCAT
201	CTTTCATCTT	TCATCTTCA	TCTTTCATCT	TTCATCTTTC	ACATGCCCTG
251	ATGAACCGAG	GGAAAGGGAGG	GAGGGGCAAG	AATGAAGAGG	GAGCTGAACG
301	AACGCAAATG	ATAAAGTAAT	TTAATTGTTT	AACTAACCTT	AGGAGAAAAT
351	ATGAACAAAGC	TATATCGTCT	CAAATTCAGC	AAACGCCCTGA	ATGCTTTGGT
401	TGCTGTGTCT	GAATTGGCAC	GGGGTTGTGA	CCATTCCAC	GAAAAAGGCA
451	GGGAAAAACC	TGCTCGCATG	AAAGTGGCGTC	ACTTAGCGTT	AAAGCCACTT
501	TCCGCTATGT	TACTATCTT	AGGTGTTAAC	TCTATTCCAC	ATCTGTTTT
551	AGCAAGCGGC	TTACAAGGAA	TGGATGTTAGT	ACACGGCACA	GCCACTATGC
601	AAGTAGATGG	TAATAAAACC	ATTATCCGCA	ACAGTGTGTA	CGATATCATT
651	AATTGAAAC	AATTAAACAT	CGACCAAAAT	GAAATGGTGC	AGTTTTTACA
701	AGAAAACAAAC	AACTCCGCCG	TATTCAACCC	TGTTACATCT	AACCAAATCT

FIG. 1B.

751	CCCAATTAAA	AGGGATTAA	GATTCTAACG	GACAAGTCCTT	TTTAATCAAC
801	CCAATGGTA	TCACAATAGG	TAAGAACGCA	ATTATTAACA	CTAATGGCTT
851	TACGGCTCT	ACGGCTAGACA	TTTCTAACGA	AAACATCAAG	GCGCGTAATT
901	TCACCTTCGA	GCAAACCAA	GATAAAGCGC	TCGCTGAAAT	TGTGAATCAC
951	GGTTAACCTTAA	CTGTCGGTAA	AGACGGCAGT	GTAAATCTTA	TTGGTGGCAA
1001	AGTGAAAAAC	GAGGGTGTGA	TTAGCGTAAA	TGGTGGCAGC	ATTCTTTAC
1051	TCGCAGGGCA	AAAAATCACC	ATCAGCGATA	TAATAAACCC	AACCATTACT
1101	TACAGCATTG	CCGGCCTGA	AAATGAAGCG	GTCAATCTGG	GGGATATTAA
1151	TGCCAAAGGC	GGTAACATTA	ATGTCCTGTGC	TGCCACTATT	CGAAACCAAG
1201	GTAAACTTTG	TGCTGATTCT	GTAAGCAAAG	ATAAAAGCGG	CAATATTGTT
1251	CTTCCGCCA	AAGAGGGTGA	AGCGGAAATT	GGCGGTGTAA	TTTCCGCTCA
1301	AAATCAGCAA	GCTAAAGGGC	GCAAGCTGTAT	GATTACAGGC	GATAAAGTCA
1351	CATTAAAAC	AGGTGCAGTT	ATCGACCTT	CAGGTAAAGA	AGGGGGAGAA
1401	ACTTACCTTG	GCGGTGACGA	GCGCGGGGAA	GGTAAAAAGG	GCATTCAATT
1451	AGCAAAGAAA	ACCTCTTTAG	AAAAGGCTC	AACCATCAAT	GTATCAGGCA
1501	AGAAAAAGG	CGGACGGCGCT	ATTGTGTGGG	GGGATATTGC	GTAAATTGAC

FIG. 1C.

1551	GGCAATATTA	ACGGCTCAAGG	TAGTGGTGAT	ATCGCTAAAAA	CCGGTGGTTT
1601	TGTGGAGACG	TCGGGGCATG	ATTATTTCAT	CAAAGACAAT	GCAATTGTTG
1651	ACGCCAAAGA	GTGGTTGTTA	GACCCGGATA	ATGTATCTAT	TAATGCAGAA
1701	ACAGCAGGAC	GCAGCAATAC	TTCAGAAAGAC	GATGAATACA	CGGGATCCGG
1751	GAATAGTGGC	AGCACCCAA	AACGAAACAA	AGAAAAGACA	ACATTAACAA
1801	ACACAACTCT	TGAGAGTATA	CTAAAAAAAG	GTACCTTTGT	TAACATCACT
1851	GCTAATCAAC	GCATCTATGT	CAATAGCTCC	ATTAATTAT	CCAATGGCAG
1901	CTTAACTCTT	TGGAGTGAGG	GTCGGAGCGG	TGGGGCGTT	GAGATTAAACA
1951	ACGATATTAC	CACCGGTGAT	GATACCAGAG	GTGCAAACTT	ACAAATTAC
2001	TCAGGGGCT	GGGTTGATGT	TCATAAAAAT	ATCTCACTCG	GGGGCAAGG
2051	TAACATAAAC	ATTACAGCTA	ACAAGATAT	CGCCTTTGAG	AAAGGAAGCA
2101	ACCAAGTCAT	TACAGGTCAA	GGGACTATTA	CCTCAGGCAC	TCAAAAGGT
2151	TTTAGATTTA	ATAATGTCTC	TCTAAACGGC	ACTGGCAGCG	GACTGCAATT
2201	CACCACTAAA	AGAACCAATA	AATACGCTAT	CACAAATAAA	TTTGAAGGGAA
2251	CTTTAAATAT	TTCAGGGAAA	GTGAACATCT	CAATGGTTTT	ACCTAAAAAT
2301	GAAAGTGGAT	ATGATAAATT	CAAAGGACGC	ACTTACTGGA	ATTAAACCTC

FIG. 1D.

2351 CTTAAATGTT TCCGAGAGTG GCGAGTCAA CCTCACTATT GACTCCAGAC
2401 GAAGCGATAG TGCAGGCACA CTTACCCAGC CTTATAATT AAACGGTATA
2451 TCATTCAACCA AAGACACTAC CTTTAATGTT GAACGAAATG CAAGAGTCAA
2501 CTTTGACATC AGGGCACCAA TAGGGATAAA TAAGTATTCT AGTTTGAA'AT
2551 ACGCATCATTAATGGAAAC ATTTCAGTT CGGGAGGGGG GAGTGTGAT
2601 TTCACACTTC TCGCCTCATH CTCTAACGTC CAAACCCCCG GTGTAGTTAT
2651 AAATTCTAAA TACTTTAATG TTTCAACAGG GTCAAGTTA AGATTAAAA
2701 CTTCAGGCTC AACAAAAACT GGCTTCTCAA TAGAGAAAGA TTTAACCTTA
2751 AATGCCACCG GAGGCAACAT AACACTTTTG CAAGTTGAAG GCACCCGATGG
2801 AATGATTGGT AAGGCATTG TAGCCAAAAA AACATAACC TTTGAAGGAG
2851 GTAACATCAC CTTGGCTCC AGGAAAGCCC TAACAGAAAT CGAAGGCAAT
2901 GTTACTATCA ATAACAAACGC TAACGTCACT CTTATCGTT CGGATTGTA
2951 CAACCATCAA AACCTTAA CTATTTAA AGATGTCATC ATTAATAGCG
3001 GCAACCTTAC CGCTGGAGGC AATATGTCA ATATAGCCGG AAATCTTAC
3051 GTTGAAGTAA CGCTTAATT CAAAGCTATC ACAAAATTCA CTTTTAATG
3101 AGGCGGCTTG TTGACAAACA AAGGCAATTCA AAATATTTC CTTTAAATG
3151 GAGGGGCTCG CTTAAAGAC ATTGATAATT CCAAGAATT AAGCATCACC

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FIG. 1E.

3201 ACCAAACTCCA GCTCCACTTA CCGCACTATT ATAAGCGGCA ATATAACCAA
3251 TAAAAAACGGT GATTAAATA TTACGGAACGA AGGTAGTGAT ACTGAAATGC
3301 AAATTGGCGG CGATGTCG CAAAAGAAG GTAAATCTCAC GATTCTCTCT
3351 GACAAAATCA ATATTACCAA ACAGATAACA ATCAAGGCAG GTGTTGATGG
3401 GGAGAATTCC GATTCAAGCC CGACAAACAA TGCCAATCTA ACCATTA
3451 CCAAGAATT GAAATTAAACG CAAGACCTAA ATATTTCAGG TTTCAATAAA
3501 GCAGAGATTAA CAGCTAAAGA TGGTAGTGAT TTAACTATTG GTAACACCAA
3551 TAGTGCTGAT GGTACTAATG CCAAAAAGT AACCTTTAAC CAGGTTAAAG
3601 ATTCAAAAT CTCTGCTGAC GGTCAACAAGG TGACACTACA CAGCAAAGTG
3651 GAAACATCCG GTAGTAATAA CAACACTGAA GATAGCAGTG ACAATAATGC
3701 CGGCTTAACT ATGGATGCAA AAAATGTAAC AGTAAACAAAC ATATTACTT
3751 CTCACAAAGC AGTGAGCATC TCTGGGACAA GTGGAGAAAT TACCACTAA
3801 ACAGGTACAA CCATTAACGC ACCACTGGT AACGGTGGAGA TAACCGCTCA
3851 AACAGGTAGT ATCCCTAGGTG GAATTGAGTC CAGCTCTGGC TCTGTAACAC
3901 TTACTGCAAC CGAGGGCGCT CTTGCTGTAA GCAATATTTC GGGCAACACC
3951 GTTACTGTTA CTGCAAATAG CGGTGCATTA ACCACTTTGG CAGGCTCTAC

FIG. 1F.

4 001 AATTAAGGA ACCGAGAGTG TAACCACCTTC AAGTCAATCA GCGGATAATCG
4 051 GCGGTACGAT TTCTGGTGGC ACAGTAGAGG TAAAGCAAC CGAAAGTTA
4 101 ACCACTCAAT CCAATTCAA AATTAAAGCA ACAACAGGG AGGCTAACGT
4 151 ACAAAGTGCA ACAGGTACAA TTGGTGGTAC GATTCCGGT AATACGGTAA
4 201 ATGTTACGGC AAACGCTGGC GATTTAACAG TTGGAATGG CCCAGAAATT
4 251 AATGCCGACAG AAGGAGCTGC AACCTTAACT ACATCATCGG GCAAATTAAC
4 301 TACCGAAGCT AGTTCACACA TTACTTCAGC CAAGGGTCAG GTAAATCTTT
4 351 CAGCTCAGGA TGGTAGCGTT GCAGGAAGTA TAAATGCCGC CAATGTGACA
4 401 CTAAATACTA CAGGCACTT AACTACCGTG AAGGGTTCAA ACATTAATGC
4 451 AACCAGCGGT ACCTTGGTT TAAACGCCAA AGACGCTGAG CTAATGGCG
4 501 CAGCATTGGG TAACCACACA GTGGTAAATG CAACCAACGC AAATGGCTCC
4 551 GGCAGCGTAA TCGCGACAAC CTCAACAGCAGA GTGAACATCA CTGGGGATT
4 601 AATCACAAATA AATGGATTAA ATATCATTTC AAAAACGGT ATAAACACCG
4 651 TACTGTTAAA AGGGCTTAAA ATTGATGTGA AATACATTCA ACCGGGTATA
4 701 GCAAGCGTAG ATGAAAGTAAAT TGAAGCGAAA CGCATTCCCTTG AGAAGGTTAA
4 751 AGATTATCT GATGAAGAAA GAGAAGCGTT AGCTAAACTT GGAGTAAGTG
4 801 CTGTACGTT TATTGAGCCA ATAATACAA TTACAGTCCG TACACAAAT

FIG. 1G.

4851	GAATTTGCAA	CCAGACCATT	AAGTCGAATA	GTGATTCTG	AAGGCAGGGC
4901	GTGTTTCTCA	AACAGTGATG	GCGCGACGGT	GTGCCGTTAAT	ATCGCTGATA
4951	ACGGGGGGTA	GCGGTCAAGTA	ATTGACAAGG	TAGATTTCAT	CCTGCAATGA
5001	AGTCATTTTA	TTTTCGTATT	ATTACTGTG	TGGGTTAAAG	TTCAGTACGG
5051	GCTTTACCCA	TCTTGTAAA	AATTACGGAG	AATACAATAA	AGTATTTTTA
5101	ACAGGTTATT	ATTATG			

FIG. 2A. AMINO ACID SEQUENCE OF HIGH MOLECULAR WEIGHT PROTEIN I

1	MNKIYRLKFS	KRLNALVAVS	ELARGCDHST	EKGSEKPARM	KVRHLALKPL
51	SAMLLSLGVIT	SIPQSVLASF	LQGMDVVFHGT	ATMQVDGDNKT	TIRNSVDAII
101	NWKQFNIIDQN	EMVQFLQENN	NSAVFNRVTS	NQISQLKGIL	DSNGQVFLIN
151	PNGITIGKDA	IINTNGFTAS	TLDISNENIK	ARNFTFEQTK	DKALAEIVNH
201	GLITVGKDGS	VNLIGGGKVKN	EGVISVNGGS	ISLLAGQKIT	ISDIINPTIT
251	YSIAAPENEAI	VNLGDIIFAKG	GNINVRAATI	RNQGKLSSADS	VSKDKSGNIV
301	LSAKEGEAEI	GGVISAQNQQ	AKGGKLMITG	DKVTLKTAGV	IDLSSGKEGGE
351	TYLGGDERGE	GKNGIQLAKK	TSLEKGSTIN	VSGKEKGGRA	IWWDIALID
401	GNINAQGSGD	IARTGGFVET	SGHDLFIKDN	AIVDAKEWLL	DFDNVSIINAE
451	TAGRSNTSED	DEYTGSNSA	STPKRNKEKT	TLTNNTLESI	LKKGTFVNIT
501	ANQRIYVNSS	INLSNGSLTL	WSEGRSGGGV	EINNDITTGD	DTRGANLTIV
551	SGGWWVDVHKN	ISLGQAQGNIN	ITAKQDIAFE	KGSNQVITGQ	GTITSGNQKG
601	FRFNNVSLNG	TGSGLQFTTK	RTNKYAITNK	FEGTLNISGK	VNISMVLPKN
651	ESGYDKFKGR	TYWNLTSLNV	SESGEFNLTI	DSRGSDSAGT	LTQPYYNLNGI
701	SFNKDTTFNV	ERNARVNFDI	KAPIGINKYS	SLNYASFNGN	ISVSGGGSV

FIG. 2B.

751 FTLLASSSSNV QTPGVVVINSK YFNVSTGSSL RFKTSGSTKT GFSIEKDLTL
801 NATGGNITIL QVEGTDGMIG KGIVAKKNIT FEGGNITFGS RKAVTELEGN
851 VTINNNANT LIGSDFDNHQ KPLTIKKDVI INSGNLTAGG NIVNIAGNLT
901 VESNANFKAI TNFTFNVGGL FDNKGNNSNIS IAKGGARFKD IDNSKNLNSIT
951 TNSSSSTYRTI ISGNITINKNG DLNITNEGSD TEMQIGGDVS QKEGNLTIS
1001 DKINITKQIT IKAGVDGENS DSDATNNANL TIKTKELKLT QDLNISGFNK
1051 AEITAKDGSD LTIGNNTNSAD GTNAKKVTFN QVKDSKISAD GHKVTLHSRV
1101 ETSGSNNNTE DSSDNNAGLT IDAKNVTVNN NITSHKAVSI SATSGEITTK
1151 TGTTINATTG NVEITAQTGS ILGGIESSSG SVTLTATEGA LAVSNISGNT
1201. VTVVTANSGAL TTLAGSTIKG TESVTTSSQS GDIGGTTISGG TVEVKATESL
1251 TTQSNNSKIKA TTGEANTVSA TGTIGGTISG NTVNVTANAG DLTVGNGAEI
1301 NATEGAATLT TSSGKLTEA SSHITSAKGQ VNLSAQDGSV AGSINAANVT
1351 LNTTGTLTTV KGSSNINATSG TLVINAKDAE LNGAALGNHT VVNATNANGS
1401 GSVIATTSSR VNITGDLITI NGLNIIISKNG INTVLLKGVR DVKYIQPGI
1451 ASVDEVIEAK RILEKVKDLS DEEREALAKL GVSAVRFIEP NNTITVDTQN
1501 EFATRPLSRI VISSEGRACFS NSDGATVCVN IADNGR

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FIG. 3A.DNA SEQUENCE OF HIGH MOLECULAR WEIGHT
PROTEIN II (HMM2)

1 TAAATATACA AGATAATAAA AATAAAATCAA GATTTTTGTC ATGACAAACA
51 ACAATTACAA CACCTTTTT GCAGTCTATA TGCAAATATT TTAAAAAAAT
101 AGTATAAAC CGCCATATAA AATGGTATAA TCTTTCATCT TTCATCTTTA
151 ATCTTTCATC TTTCATCTT CATCTTTCAT CTTCATCTT TCATCTTTCA
201 TCTTTCATCT TTTCATCTTC ATCTTCATC ATCTTCATCTT CACATGAAAT
251 GATGAACCGA GGGAAAGGGAG GGAGGGGCAA GAATGAAGAG GGAGCTGAAC 10/82
301 GAACGCCAAT GATAAAGTAA TTTAATTGTT CAACTAACCT TAGGAGAAA
351 TATGAACAAG ATATATCGTC TCAAATTTCAG CAAACGCCCTG AATGCTTTGG
401 TTGCTGTGTC TGAATTGGCA CGGGGTTGTC ACCATTCCAC AGAAAAAGGC
451 TTCCGCTATG TTACTATCTT TAGGTGTAAC CACTTAGCGT TAAAGCCACT
501 TTCCGCTATG TTACTATCTT TAGGTGTAAC ATCTATTCCA CAATCTGTTT
551 TAGCAAGCGG CTTACAAGGA ATGGATGTTAG TACACGGCAC AGCCACTATG
601 CAAGTAGATG GTAAATAAAAC CATTATCCGC AACAGTGTG ACGCTATCAT
651 TAATTGGAAA CAATTAAACA TCGACCAAAA TGAAATGGTG CAGTTTTAC
701 AAGAAAACAA CAACTCCGCC GTATTCAACC GTGTTACATC TAACCAAATC

FIG. 3B.

751 TCCCAATTAA AAGGGATT TT AGATTCTAAC GGACAAGTCT TTTTAATCAA
801 CCCAAATGGT ATCACAAATAG GTAAAGACGC AATTATTAAAC ACTAAATGGCT
851 TTACGGCTTC TAGGCTAGAC ATTTCCTAACG AAAACATCAA GGGCGGTAAT
901 TTCACCTTCG AGCAAACCAA AGATAAAGCG CTCGCTGAAA TTGTGAATCA
951 CGGTTAATT ACTGTCGGTA AAGACGGCAG TGTAAATCTT ATTGGTGGCA
1001 AAGTAAAAA CGAGGGTGTG ATTAGCTAA ATGGTGGCAG CATTCTTTA
1051 CTCGGAGGGC AAAAAATCAC CATCAGGGAT ATAATAAACC CAACCATTAC
1101 TTACAGCATT GCCGGCCCTG AAAATGAAGC GGTCAAATCTG GGGATATT
1151 TTGCCAAAGG CGGTAACATT AATGTCGGTG TGTAAGCAA GATAAAAGCG CTGCCACTAT TCGAAACCAA
1201 GGTAAACTTT CTGCTGATTC TGTAAAGCAA GATAAAAGCG GCAATATTGT
1251 TCTTTCGGCC AAAGAGGGTG AAGCGGAAT TGGCGGTGTA ATTTCGGCTC
1301 AAAATCAGCA AGCTAAAGGC GGCAGCTGA TGATTAACAGG CGATAAAAGTC
1351 ACATTAAAA CAGGTGCAGT TATCGACCTT TCAGGTAAAG AAGGGGGAGA
1401 AACTTACCTT GGGGGTGACG AGGGGGCGA AGGTAAAAAC GCATTCAAAT
1451 TAGCAAAGAA AACCTCTTTA GAAAAGGCT CAACCATCAA TGTATCAGGC
1501 AAAGAAAAAG GCGGACGGC GC TATTGTTGCG TGGGATATTG CGTTAAATTGA

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FIG. 3C.

1551 CGGCAATAT AACGGCTCAA G TAGGGGTGA TATCGCTAAA ACCGGTGGTT
1601 TTGTGGAGAC ATCGGGGCAT TATTATCCA TTGACAGCAA TGCAATTGTT
1651 AAAACAAAG AGTGGTTGCT AGACCCTGAT GATGTAACAA TTGAAGCCGA
1701 AGACCCCCCT CGCAATAATA CCGGTATAAA TGATGAAATTG CCAACAGGCA
1751 CCGGTGAAGC AAGCGACCCCT AAAAAAATA GCGAACTCAA ACAAACGCTA
1801 ACCAATACAA CTATTTCAAATTATCTGAAA AACGCCCTGGA CAATGAATAT
1851 AACGGCATCA AGAAAACCTTA CGGTTAATAG CTCAAATCAAAC ATCGGAAGCA
1901 ACTCCCACTT AATTCTCCAT AGTAAAGGTC AGCGTGGCGG AGGCCTTCAG
1951 ATTGATGGAG ATATTACTTC TAAAGGGGA AATTAAACCA TTTATTCTGG
2001 CGGATGGTT GATGTTCAT AAAAAATTAC GCTTGATCAG GTTATTAA
2051 ATATTACCGC CGCTTCCGTA GCTTTGAAAG GTGGAATAA CAAAGCACGC
2101 GACGGGGCAA ATGCTAAAT TGTGCCCGAG GGCACTGTAA CCATTACAGG
2151 AGAGGGAAAA GATTTCAGGG CTAACAAACGT ATCTTTAAC AC
2201 AAGGTCTGAA TATCATTCA TCAGTGAATA ATTAAACCA CAATCTTAGT
2251 GGCACAATTAA ACATATCTGG GAATAAAACA ATTAAACCA CAATCTTAGT
2301 GAACACCTCG TATGGAAA CCAGCCATGA TTGGCACTGG AACGTCAGTG
2351 CTCTTAATCT AGAGACAGGC GCAAATTAA CCTTTATTAA ATACATTCA

FIG. 3D.

2401	AGCAATTAGCA	AAGGCTTAAC	AACACAGTAT	AGAAGCTCTG	CAGGGGTGAA
2451	TTTTAACGGC	GTAAATGGCA	ACATGTCATT	CAATCTCAA	GAAGGAGCGA
2501	AAGTTAATT	CAAATTAAA	CCAAACCGAGA	ACATGAACAC	AAGCAAACCT
2551	TTACCAATT	GGTTTTAGC	CAATATCACA	GCCACTGGTG	GGGCTCTGT
2601	TTTTTTGAT	ATATATGCCA	ACCATTCTGG	CAGAGGGCT	GAGTTAAAAA
2651	TGAGTGAAAT	TAATATCTCT	AACGGCGCTA	ATTTTACCTT	AAATTCCCCAT
2701	GTTCGGGCG	ATGACGGCTT	TAAAATCAAC	AAAGACTTAA	CCATAAAATGC
2751	AACCAATTCA	AATTTCAGCC	TCAGACAGAC	GAAAGATGAT	TTTTATGACG
2801	GGTACGGACG	CAATGCCATC	ATTCAACCT	ACAACATATC	CATTCTGGGC
2851	GGTAATGTCA	CCCTTGGTGG	ACAAAACCTCA	AGCAGCAGCA	TTACGGGAA
2901	TATTACTATC	GAGAAAGCAG	CAAATGTTAC	GCTAGAAGCC	AATAACGCC
2951	CTAAATCAGCA	AAACATTAAGG	GATAGAGTTA	TAAAACTTGG	CAGCTTGCTC
3001	GTAAATGGGA	GTTTAAGTT	AACTGGCGAA	AATGCAGATA	TTAAAGGCAA
3051	TCTCACTATT	TCAGAAAGCG	CCACTTTAA	AGGAAAAGACT	AGAGATAACCC
3101	TAATATCAC	CGGCAATT	ACCAATAATG	GCACTGCCGA	ATTAAATAAA
3151	ACACAAGGAG	TGGTAAACT	TGGCAATGTT	ACCAATGATG	GTGATTAAA

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FIG. 3E.

3201	CATTACCACT	CACCGCTAAC	GCAACCAAAG	AAGCATTAC	GGCGGAGATA
3251	TAATCAACAA	AAAAGGAAGC	TTAAAATATTA	CAGACAGTAA	TATGATGCT
3301	GAAATCCAAA	TTGGCGGCCAA	TATCTCCCAA	AAAGAAGGCA	ACCTCACGAT
3351	TTCTTCCGAT	AAAATTAAATA	TCACCAAACA	GATAACAATC	AAAAGGGTA
3401	TTGATGGAGA	GGACTCTAGT	TCAGATGCCA	CAAGTAATGC	CAACCTAACT
3451	ATTAACCA	AAGAATTGAA	ATGACAGAA	GACCTAAGTA	TTTCAGGTT
3501	CAATAAGCA	GAGATTACAG	CCAAAGATGG	TAGAGATTAA	ACTATTGGCA
3551	ACAGTAATGA	CGGTAAACAGC	GGTGCCCCAAG	CCAAAACAGT	AACTTTAAC
3601	AATGTTAAAG	ATTCAAAAT	CTCTGCTGAC	GGTCACAAATG	TGACACTAA
3651	TAGCAAAGTG	AAAACATCTA	GCAGGCAATGG	CGGACCGTGAA	AGCAATAGCG
3701	ACAACGATA	CGGCTTAACT	ATTACTGCAA	AAAATGTAGA	AGTAAACAAA
3751	GATATTACTT	CTCTCAAAAC	AGTAAATATC	ACCGCGTCGG	AAAAGGTAC
3801	CACCACAGCA	GGCTCGACCA	TTAACGCAAC	AAATGGCAA	GCAAGTATTAA
3851	CAACCAAAAC	AGGTGATATC	AGCGGTTACGA	TTTCCGGTAA	CACGGTAAGT
3901	GTTAGGCCGA	CTGGTGTGATT	AACCCACTAAA	TCCGGCTCAA	AAATTGAAGC
3951	GAATCGGGT	GAGGCTAATG	TAACAACTG	AACAGGTACA	ATTGGCGGTA

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FIG. 3F.

4001 CAATTCCGG TAATACGGTA AATGTTACGG CAAACGCTGG CGATTAAACA
 4051 GTTGGGAATG GCGCAGAAAT TAATGGGACA GAAGGGACTG CAACCTTAAC
 4101 CGCAACAGGG AATAACCTTG A CTACTGAAAGC CGGTTCTAGC ATCACTCAA
 4151 CTAAGGGTCA GGTAGACCTC TTGGCTCAGA ATGGTAGCAT CGCAGGAAGC
 4201 ATTAAATGCTG CTAAATGTGAC ATTAAATACT ACAGGCACCT TAACCACCGT
 4251 GGCAGGGCTCG GATATTAAAG CAAACCAGCGG CACCTTGGTT ATTAACGCAA
 4301 AAGATGCTAA GCTAAATGGT GATGCATCAG GTGATAGTAC AGAAGTGAAT
 4351 GCAGTCAACG CAAGCGGCTC TGGTAGTGTG ACTGCCCAA CCTCAAGCAG
 4401 TGTGAATATC ACTGGGGATT TAAACACAGT AAATGGGTAA ATATCATTT
 4451 CGAAAGATGG TAGAACACT GTGCGCTTAA GAGGCAAGGA ATTGAGGTG
 4501 AAATATATCC AGCCAGGTGT AGCAAGTGTAA GAAGAAGTAA TTGAAGCGAA
 4551 ACGCGTCCTT GAAAAGTAA AAGATTATC TGATGAAGAA AGAGAAACAT
 4601 TAGCTAAACT TGGTGTAAAGT GCTGTACGTT TTGTTGAGCC AAATAATACA
 4651 ATTACAGTCA ATACACAAAA TGAATTACA ACCAGACCGT CAAGTCAGT
 4701 GATAATTCTC GAAGGTAAGG CGTGTTCCTC AAGTGGTAAAT GGGCACCGAG
 4751 TATGTACCAA TGTGGCTGAC GATGGACAGC CGTAGTCAGT AATTGACAAG
 4801 GTAGATTCA TCCTGCAATG AAGTCATT TT ATTTCGTAT TATTACTGT

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FIG. 3G.

4851	GTGGGTTAAA	GTTCAGTACG	GGCTTTACCC	ATCTTGTAAA	AAATTACCGGA
4901	GAATACAATA	AAGTATTTT	AACAGGTTAT	TATTATG	

FIG. 4A. AMINO ACID SEQUENCE OF HIGH MOLECULAR WEIGHT
PROTEIN 2

1 MNKTYRLKFS KRLNALVAVS ELARGCDHST EKGSEKPARM KVRHLALKPL
51 SAMLLSLGVVT SIPQSVLASSG LQGMDV VHGT ATMQVDGNKT IIRNSVIDAI
101 NWKQFNIIDQN EMVQFLQENN NSAVFNRVTS NQISQLKGIL DSNGQVFELIN
151 PNGITIGKDA IINTNGFTAS TLDISNENIK ARNFTFEQTRK DKALAEIVNH
201 GLITVGKDGS VNLLIGGKVKN EGVISVNNGGS ISLLAGQKIT ISDIIINPTIT
251 YSIAAPENEAA VNLGDIIFAKG GNINVRAATI RNQGKLSADS VS KDKSGNIV
301 LSAKEGEAEI GGVI SAQNQQ AKGGKLMMTG DVVTLLKTGAV IDLSGKEGGE
351 TYLGGDERGE GKNGIQLAKK TSLEKGSTIN VSGKEKGGR A IWGDIALID
401 GNINAQGSSD IAKTGGFVET SGHDLFIKDN AIUDAKEWLL DF DNVSINA
451 DPLRNNNTGIN DEFPTGTGEA SDPKKNSELK TTLTNTTISN YLKNAWTMNI
501 TASRKLTIVNS SINIGSNSHL ILHSKGQRGG GVQIDGDITS KG GNLTIYSG
551 GWVDVHKNIT LDQGFLNITA ASVAFEGGNN KARDAANAKI VAQGTVTITG
601 EGKDFRANNV SLNGT GKGILN TISSVNNLTH NLSGTINISG NITINQTRK
651 NT SYWQTSHD SHWNVVSALNL ETGANFTFIK YISSNSKGILT TQYRSSAGVN
701 FNGVNGINMSF NLKEGAKVNF KLKPNNENMNT SKPLPIRFIA NITATGGGSV

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FIG. 4B.

751 FFDIYANHSG RGAEJKLMSEI NISNGANFTL NSHVRGDDAF KINKDLTINA
 801 TNSNFSLRQT KDDFYDGYAR NAINSTYNIS ILGGGNVTLLGG QNSSSSITGN
 851 ITIEKAANVT LEANNAPNQQ NIRDRVIKLG SLLVNGSLSL TGENADIKGN
 901 LTISESATFK GKTRDTLNIT GNFTNNINGTAE INITQGVVKL GNVTNDCDLN
 951 TTTHAKRNQR SIIGGDIINK KGSLNITDSN NDAEIQIGGN ISQKEGNLTI
 1001 SSDKINITKQ ITIKKGIDGE DSSSDATSNA NLTIKTKELK LTEDLSISGF
 1051 NKAELITAKDG RDLTIGN SND GNSGAEAKTV TFNNVKDSKI SADGHNVTLN
 1101 SKVKTSSSNG GRESNSDNDT GLTTAKNVE VNKDITSLKT VNITASEKVT
 1151 TAGSTINAT NGKASITTKT GDISGTTISGN TVSVSATVVDL TTKSGSKIEA
 1201 KSGEANVTSA TGTIGGTISG NTVNVTANAG DLTVGNGAEI NATEGAATLT
 1251 ATGNTLTTEA GSSITSTKGQ VDILLAQNQSI AGSINAANVT LNTTGTLTTV
 1301 AGSDIKATSG TLVINAKDAK LNGDASGDST EVNAVNASGS GSVTAAATSSS
 1351 VNITGDLNTV NGLNIIISKDG RNTVRLRGKE IEVKYIQPGV ASVEEVIEAK
 1401 RVLEKVKDLS DEERETLAKL GVSAYRFVEP NNNTITVNTQN EFTTRPSSQV
 1451 TISEGKACFS SGNGARVCTN VADDGQP

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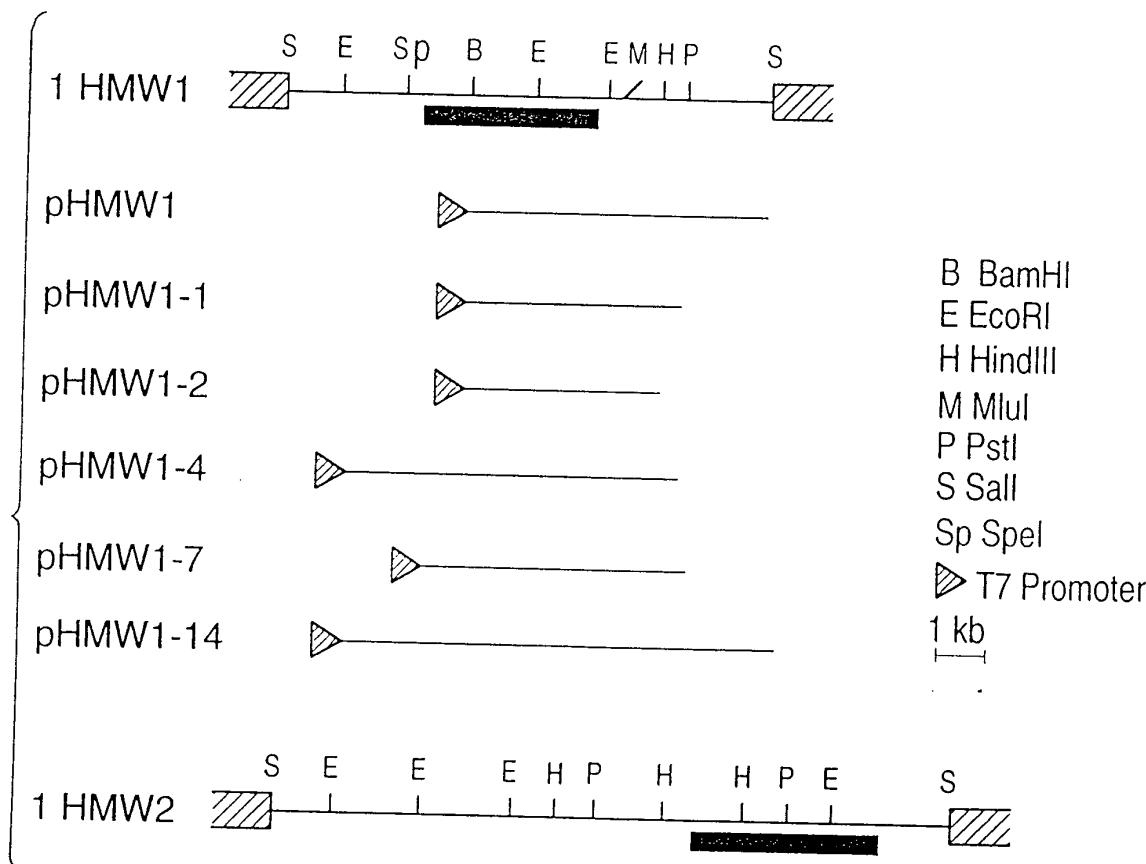
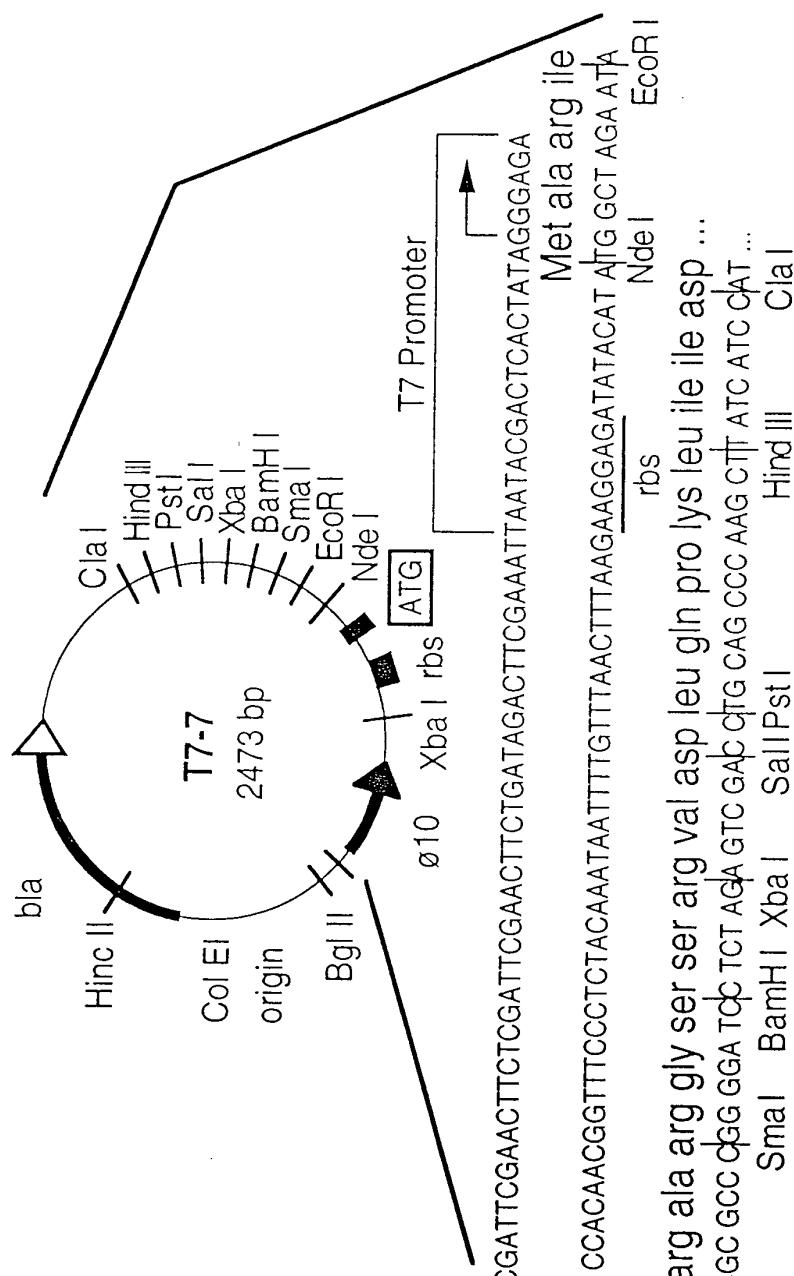


FIG.5A.



F I G . 5 B .

(A) Partial restriction maps of representative HMW1 and HMW2 recombinant phage and of HMW1 plasmid subclones. The shaded boxes indicate the locations of the structural genes. In the recombinant phage, transcription proceeds from left to right for the HMW1 gene and from right to left for the HMW2 gene. The methods used for construction of the plasmids shown are described in the text. (B) Restriction map of the T7 expression vector pT7-7. This vector contains the T7 RNA polymerase promoter ø10, a ribosome - binding site (rbs), and the translational start site for the T7 gene 10 protein upstream from a multiple cloning site (37).

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FIG. 6A.

1	ACAGCGTTCT	CTTAATACTA	GTACAAACCC	ACAATAAAAT	ATGACAAACA
51	ACAATTACAA	CACCTTTT	GCAGTCTATA	TGCAAATATT	TTAAAAATA
101	GTATAAATCC	GCCATATAAA	ATGGTATAAT	CTTTCATCTT	TCATCTTCA
151	TCTTCATCT	TTCATCTTTC	ATCTTCATC	TTTCATCTT	CATCTTCAT
201	CTTTCATCTT	TCATCTTCA	TCCTTCATCT	TTCATCTTTC	ACATGAAATG
251	ATGAACCGAG	GGAAAGGGAGG	GAGGGCAAG	AATGAAGAGG	GAGCTGAACG
301	AACGCCAAATG	ATAAAGTAAT	TTAATTGTTTC	AACTAACCTT	AGGAGAAAAT
351	ATGAACAAAGA	TATATCGTCT	CAAATTCAAGC	AAACGCCCTGA	ATGCTTTGGT
401	TGCTGTGTCT	GAATTGGCAC	GGGGTTGTGA	CCATTCCACA	GAAAAGGCA
451	GGAAAAAAC	TGCTCGCATG	AAAGTGGCGTC	ACTTAGCGTT	AAAGCCACTT
501	TCCGCTATGT	TACTATCTT	AGGTGTAACA	TCTATTCCAC	AATCTGTTTT
551	AGCAAGGGC	TTACAAGGAA	TGGATGTAGT	ACACGGCACA	GCCACTATGC
601	AAGTAGATGG	TAATAAAACC	ATTATCCGCA	ACAGTGTGTA	CGCTATCATT
651	AATTGGAAAC	AATTAAACAT	CGACCAAAAT	GAAATGGTGC	AGTTTTTACA
701	AGAAAACAAAC	AACTCCGGCG	TATTCAACCG	TGTTACATCT	AACCAAATCT
751	CCCAATTAAA	AGGGATTTTA	GATTCTAACG	GACAAGTCTT	TTTAATCAAC

FIG. 6B.

801 CCAAATGGTA TCACAATAGG TAAAGACGCA ATTATTAACA CTAATGGCTT
851 TACGGCTTCT ACGCTAGACA TTCTAACGA AAACATCAA GCGCGTAATT
901 TCACCTTCGA GCAAACAAA GATAAAGCGC TCGCTGAAT TGTGAATCAC
951 GGTTAATT CTGTCGGTAA AGACGGCAGT GTAAATCTTA TTGGTGGCAA
1001 AGTGA AAAAC GAGGGTGTGA TAGCCGATA TGTTGGCAGC ATTTCTTTAC
1051 TCGCAGGGCA AAAATCACC ATCAGCGATA TAATAACCC ACCATTA
1101 TACAGCATTG CGCGCCTGA AAATGAAGCG GTCAATCTGG GCGATATT
1151 TGCCAAAGGC GGTAAACATTA ATGTCCTGTGC TGCCACTATT CGAAACCAAG
1251 CTTTCGCCA AAGAGGGTGA AGCGGAAATT GGCGGTGTA TTCCGCTCA
1301 AAATCAGCAA GCTAAAGGG GCAAGCTGAT GATTACAGGC GATAAAGTC
1351 CATTAAAAAC AGGTGCAGTT ATCGACCTTT CAGGTAAAGA AGGGGAGAA
1401 ACTTACCTTG GCGGTGACGA GCGGGGGAA GGTAAAAACG GCATTCAATT
1451 AGCAAAGAAA ACCCTCTTTAG AAAAGGCTC ACCATCAAT GTATCAGGCA
1501 AGAAAAAGG CGGACGGCCT ATTGTGGGG GCGATATTGC GTTAATTGAC
1551 GGCAATATTAA ACGGCTCAAGG TAGTGGTGAT ATCGCTAAA CGGGTGGTT
1601 TGTGGAGACG TCGGGGCATG ATTATTCAT CAAAGACAAAT GCAATTGTTG

FIG. 6C.

1651 ACGCCAAAGA GTGGTTGTTA GACCCGGATA ATGTATCTAT TAATGCCAGAA
1701 ACAGCAGGAC GCAGCAATTAC TTTCAGGAAGAC GATGAATACA CGGGATCCGG
1751 GAATAGTGC C AGCACCCAA AACGAAACAA AGAAAAGACA ACATTAACAA
1801 ACACAACTCT TGAGAGTATA CTAAAAAAAG GTACCTTTGT TAACATCACT
1851 GCTAAATCAAC GCATCTATGT CAATAGCTCC ATTAAATTAT CCAATGGCAG
1901 CTTAACTCTT TGGAGTGAGG GTCGGGAGCGG TGGCGGGTT GAGATTAACA
1951 ACGATATTAC CACCGGTGAT GATACCAGAG GTGCCAAACTT ACAAATTAC
2001 TCAGGGGGCT GGGTTGATGT TCATAAAAAT ATCTCACTCG GGGCGCAAGG
2051 TAACATAAAC ATTACAGCTA ACAAGATAT CGCCCTTTGAG AAAGGAAGCA
2101 ACCAAGTCAT TACAGGTCAA GGGACTATTA CCTCAGGCAA TCAAAAAGGT
2151 TTTAGATTAA ATAATGTCCTC TCTAAACGGC ACTGGCAGCG GACTGCAATT
2201 CACCACTAAA AGAACCAATA AATACGCTAT CACAAATAAA TTGGAAGGGA
2251 CTTTAAATAT TTCAGGGAAA GTGAACATCT CAATGGTTT ACCTAAAAAT
2301 GAAAGTGGAT ATGATAAATT CAAAGGACGC ACTTAACTGGG ATTAAACCTC
2351 GAAAGTGGAT ATGATAAATT CAAAGGACGC CCTCACTATT GACTCCAGAG
2401 GAAGCGGATAG TGCAGGCACA CTTACCCAGC CTTATAATT AACCGGTATA
2451 TCATTCAACAA AAGACACTAC CTTTAATGTT GAACGAAATG CAAGAGTCAA

FIG. 6D.

2501 CTTTGACATC AAGGCACCAA TAGGGATAAA TAAGTATTCT AGTTTGAAATT
2551 ACGCATCATTAATGGAAAC ATTTCACTT CGGGAGGGG GAGTGTGAT
2601 TTCACACTTC TCGCCTCATC CTCTAACGTC CAAACCCCCG GTGTAGTTAT
2651 AAATTCTAAA TACTTTAATG TTTCACAGG GTCAAGTTA AGATTAAAA
2701 CTTCAGGCTC AACAAAAACT GGCTTCTCAA TAGAGAAAGA TTTAACCTTA
2751 AATGCCACCG GAGGCAACAT AACACTTTTG CAAGTTGAAG GCACCGATGG
2801 AATGATTGGT AAAGGCATTG TAGCCAAAAA AAACATAACC TTTGAAGGAG
2851 GTAGATGAG GTTGGCTCC AGGAAAGCCG TAACAGAAAT CGAACGCAAT
2901 GTTACTATCA ATAACAACGC TAACGTCACT CTTATCGGTT CGGATTGTA
2951 CAACCATCAA AACCTTTAA CTATTTAAA AGATGTCA ATATAGCCGG AAATCTTAC
3001 GCAACCTTAC CGCTGGAGGC AATATTGTCA ATATAGCCGG ATTAAATAAGCG
3051 GTTGAAAGTA ACGCTAATT CAAAGCTATC ACAAAATTCA CTTTTAATGT
3101 AGGGGGCTTG TTGACAAACA AAGGCAATT AAATATTCC AAATGCAAAG
3151 GAGGGGCTCG CTTAAAGAC ATTGATAATT CCAAGAATT CCGCACTATT ATTGCCAAAG
3201 ACCAAACTCCA GCTCCACTA CCGCACTATT ATAAGCGGCA ATATAACCAA
3251 TAAAAAACGGT GATTAAATA TTACGAAACGA AGGTAGTGAT ACTGAAATGC

FIG. 6E.

3301	AAATTGGCGG	CGATGTCTCG	CAAAAGAAG	GTAATCTCAC	GATTTCTTCT
3351	GACAAAATCA	ATATTACCA	ACAGATAACA	ATCAAAGGCAG	GTGTTGATGG
3401	GGAGAATTCC	GATTCAGACG	CGACAAACAA	TGCCAATCTA	ACCATTAAAA
3451	CCAAAGAATT	GAATTAAACG	CAAGACCTAA	ATATTCAGG	TTTCAATAAA
3501	GCAGAGATT	CAGCTAAAGA	TGGTAGTGAT	TTAACTATG	GTAACACCAA
3551	TAGTGCTGAT	GGTACTAATG	CCAAAAAAGT	AACCTTTAAC	CAGGTTAAAG
3601	ATTCAAAAT	CTCTGCTGAC	GGTCACAAGG	TGACACTACA	CAGCAAAGTG
3651	GAAACATCCG	GTAGTAATAA	CAACACTGAA	GATAGCAGTG	ACAATAATGC
3701	CGGCTTAACT	ATCGATGCAA	AAAATGTAAC	AGTAAACAAAC	ATATTACTT
3751	CTCACAAAGC	AGTGAGCATC	TCTGGGACAA	GTGGAGAAAT	TACCACTAAA
3801	ACAGGGTACAA	CCATTAAACGC	AACCACTGGT	AACCGGGAGA	TAACCGCTCA
3851	AACAGGTAGT	ATCCTAGGTG	GAATTGAGTC	CAGCTCTGGC	TCTGTAACAC
3901	TTACTGCAAC	CGAGGGGGCT	CTTGCTGTAA	GCAATATTTC	GGGCAACACC
3951	GTTACTGTAA	CTGCAAATAG	CGGTGCATTA	ACCACTTTGG	CAGGCTCTAC
4001	ATTAAAGGA	ACCGAGAGTG	TAACCACCTTC	AAGTCAATCA	GGCGATATCG
4051	GCGGTACGAT	TTCTGGTGGC	ACAGTAGAGG	TTAAAGCAAC	CGAAAGTTTA

FIG. 6F.

4101 ACCACTCAAT CCAATTCAA AATTAAAGCA ACAACAGGGC AGGCTAACGT
4151 AACAAAGTGCA ACAGGGTACAA TTGGGTGGTAC GATTTCGGT AATAACGGTAA
4201 ATGTTACGGC AAACCGCTGGC GATTTAACAG TTGGGAATGG CGCAGAAATT
4251 AATGCCGACAG AAGGAGCTGC AACCTTAACACT ACATCATCGG GCAAATTAAC
4301 TACCGAAGGCT AGTTCACACA TTACTTCAGC CAAGGGTCAG GTAAATCTTT
4351 CAGCTCAGGA TGGTAGCCGT GCAGGAAGTA TTAAATGCCG CAATGTGACA
4401 CTTAAATACTA CAGGCACCTT AACTACCGTG AAGGGTTCAA ACATTAATGC
4451 AACCAGGGT ACCTTGGTTA TTAACGCCAA AGACGCTGAG CTAATGGCG
4501 CAGGCATTGGG TAACCACACA GTGGTAAATG CAACCAAACGC AAATGGCTCC
4551 GGCAGCGTAA TCGCGAACCTCAAGCAGA GTGAACATCA CTGGGGATT
4601 AATCACAAATA AATGGATTAA ATATCATTTC AAAAACGGT ATAAACACCG
4651 TACTGTTAAA AGGGCGTTAA ATTGATGTGA AATACATTCA ACCGGGTATA
4701 GCAAGCGTAG ATGAAGTAAT TGAAGCGAAA CGCATTCTTG AGAAGGTA
4751 AGATTTATCT GATGAAGAAA GAGAAGCGTT AGCTAAACTT GGCGTAAAGTG
4801 CTGTACGTTT TATTGAGCCA ATAATACAA TTACAGTCGA TACACAAAT
4851 GAATTGCAA CCAGACCATT AAGTCCGAATA GTGATTCTG AAGGCAGGGC
4901 GTGTTCTCA AACAGTGATG GCGCGACGGT GTGCCGTTAAT ATCGCTGATA

FIG. 6G.

4951	ACGGGGCGGTAA	GCGGTCAGTAA	ATTGACAAGG	TAGATTTCAT	CCTGCCAATGA
5001	AGTCATTTTA	TTTTCGTTATT	ATTACTGTG	TGGGTTAAAG	TTCAGTACGG
5051	GCTTTACCCA	TCTTGTAAAA	AATTACGGAG	AATAACAATAA	AGTATTTTA
5101	ACAGGTTATT	ATTATGAAA	ATATAAAAAG	CAGATTAAA	CTCAGTGCCTA
5151	TATCAGTATT	GCTTGGCCCTG	GCTTCTTCAT	CATTGTATGC	AGAACAGCG
5201	TTTTTAGTAA	AAGGCTTCA	GTTATCTGGT	GCACCTGAAA	CTTTAAGTGA
5251	AGACGCCAA	CTGTCCTGTAG	CAAATCTTT	ATCTAAATAC	CAAGGGCTCGC
5301	AAACTTTAAC	AAACCTAAA	ACAGCACACAGC	TTGAATTACA	GGCTGTGCTA
5351	GATAAGGATTG	AGCCAAATAA	GTTTGATGTG	ATATGTCCAC	AACAAACCAC
5401	TACGGGATGGC	AATATTATGT	TTGAGCTAGT	CTCGAAATCA	GCCGGCAGAAA
5451	GCCAAGTTT	TTATAAGGCG	AGCCAGGGTT	ATAGTGAAGA	AAATATCGCT
5501	CGTAGCCCTGC	CATCTTGAA	ACAAGGAAAA	GTGTATGAAG	ATGGTCGTCA
5551	GTGGTTCGAT	TTGCGTGAAT	TCAATATGGC	AAAGAAAAAT	CCACTTAAAG
5601	TCACTCGCGT	GCATTACGAG	TTAACCCCTA	AAACAAAC	CTCTGATTIG
5651	GTAGTTGCAG	GTTTGGCAA	ACGCGTAGCT	TTGTTCCCTA	
5701	TGATAATTTC	GGCGCAAGGG	AGTTAACTA	TCAACGTGTA	AGTCTAGGTT

FIG. 6H.

5751 TTGTAAATGC CAATTGACC GGACATGATG ATGTATTAAA TCTAAACGCA
5801 TTGACCCAATG TAAAAGCACC ATCAAAATCT TATGCCGTAG GCATAGGATA
5851 TACTTATCCG TTTTATGATA AACACCAATC CTTAAGTCCT TATACCAGCA
5901 TGAGTTATGC TGATTCTAAT GATATCGACG GCTTACCAAG TGGGATTAAT
5951 CGTAAATTAT CAAAGGTCA ATCTATCTCT GCGAATCTGA ATGGAGTTA
6001 TTATCTCCG ACATTAAACC TTGGAATGGA AGACCAGTT AAAATTAAATT
6051 TAGGCTACAA CTACCGCCAT ATTAAATCAA CATCCGAGTT AACACCCCTG
6101 GGTGCAACGA AGAAAAAATT TGCAGTATCA GGCGTAAGTG CAGGCATTGA
6151 TGGACATATC CAATTACCC CTAAACAAAT CTTTAATATT GATTAACTC
6201 ATCATTATTA CGCCGAGTAA TTACCGGGCT CTTTTGGAAAT GGAGCGCATT
6251 GGCGAACAT TTAAATCGCAG CTATCACATT AGCACAGCCA GTTTAGGGTT
6301 GAGTCAAGAG TTTGCTCAAG GTTGGCAATT TAGCAGTCAA TTATCGGGTC
6351 AGTTTACTCT ACAAGATATA AGTAGCATAG ATTATTCTC TGTAACAGGT
6401 ACTTATGGCG TCAGAGGCTT TAAATAACGGC GGTGCAAGTG GTGAGGGGG
6451 TCTTGTATGG CGTAAATGAAT TAAGTATGCC AAAATACACC CGCTTTCAA
6501 TCAGCCCCCTTA TGGGTTTTAT GATGCAGGTC AGTTCCGTTA TAATAGCGAA
6551 AATGCTAAAA CTTACGGCGA AGATATGCAC ACGGTATCCT CTGGGGGTT

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FIG. 6I.

6601	AGGCATAAA	ACCTCTCCTA	CACAAACTT	AAGCTTAGAT	GCTTTGTTG
6651	CTCGTCCGCTT	TGCCAAATGCC	AATAGTGACA	ATTGAAATGG	CAACAAAAAA
6701	CGCACACAGCT	CACCTACAAAC	CTTCTGGGGT	AGATTAACAT	TCAGTTTCTA
6751	ACCCTGAAAT	TTAATCAACT	GGTAAGCGTT	CCGCCTACCA	GTTTATAACT
6801	ATATGCTTTA	CCCGCCAATT	TACAGTCTAT	ACGCAACCCCT	GTTTTCATCC
6851	TTATATATCA	AACAAACTAA	GCAAACCAAG	CAAACCAAGC	AAACCAAGCA
6901	AACCAAGCAA	ACCAAGCAA	CCAAGCAAAC	CAAGCAAACC	AAGCAAACCA
6951	AGCAAACCAA	GCAAACCAAG	CAAACCAAGC	AAACCAAGCA	ATGCTAAAAA
7001	ACAATTATA	TGATAAACTA	AAACATACTC	CATACCATGG	CAATACAAGG
7051	GATTTAATAA	TATGACAAAA	GAAAATTAC	AAAGTGTTC	ACAAAATACG
7101	ACCGCTTCAC	TTGTAGAACAT	AAACAACGAC	CAAACCTCCC	TGCAAATACT
7151	TAACACCCA	CCCCAACCCA	ACCTATTACG	CCTGGAACAA	CATGTCGCCA
7201	AAAAGATTAA	TGAGCTTGCT	TGCCGGGAAT	TAATGGCGAT	TTTGGAAAAA
7251	ATGGACGCTA	ATTTGGAGG	CGTTCACCGAT	ATTGAATTG	ACGCACCTGC
7301	TCAGCTGGCA	TATCTACCCG	AAAACACT	AATTCAATT	GCCACTCGTC
7351	TCGCTAATGC	AATTACAACA	CTCTTTCCG	ACCCCGAATT	GGCAATTCC

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FIG. 6J.

7401	GAAGAAGGGG	CATTAAGAT	GATTAGCCTG	CAACGGCTGGT	TGACGGCTGAT
7451	TTTTGCCCTCT	TCCCCCTACG	TTAACCGCAGA	CCATATTCTC	AATAAAATATA
7501	ATATCAAACCC	AGATTCCCCAA	GGTGGCTTTC	ATTAGCAAC	AGACAAACTCT
7551	TCTATGCTA	AATTCCTGTAT	TTTTTACTTA	CCCGAATCCA	ATGTCAATAT
7601	GAGTTTAGAT	GGGTTATGGG	CAGGGAAATCA	ACAACCTTGT	GCTTCATTGT
7651	GTGGCGTT	GCAGTCTTCA	CGTTTTATTG	GTACTGCATC	TGGGTTTCAT
7701	AAAAGAGCGG	TGGTTTACAA	GTGGTTTCCT	AAAAAACTCG	CCGAAATTGC
7751	TAATTAGAT	GAATTGCCCTG	CAAATATCCT	TCATGATGTA	TATATGCACT
7801	GCAGTTATGA	TTAGCAAAA	AACAAGCACG	ATGTTAAGCG	TCCATTAAAC
7851	GAACTTGTCC	GCAAGCCATAT	CCTCACGCCA	GGATGGCAAG	ACCGCTACCT
7901	TTACACCTTA	GGTAAAAGG	ACGGCAAACC	TGTGATGATG	GTACTGCTTG
7951	AACATTTAA	TTCGGGACAT	TCGATTATTC	GCACGCCATTC	AACTTCAATG
8001	ATTGCTGCTC	GAGAAAATT	CTATTAGTC	GGCTTAGGGCC	ATGAGGGCGT
8051	TGATACATA	GGTCGAGAAG	TGTTTGACGA	GTTCTTGAA	ATCAGTAGCA
8101	ATAATATAAT	GGAGAGACTG	TTTTTTATCC	GTAAACAGTG	CGAAACTTTC
8151	CAACCCGGCAG	TGTTCTATAT	GCCAAGCATT	GGCATGGATA	TTACCACCGAT

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FIG. 6K.

8201	TTTGTGAGC	AACACTCGGC	TTGCCCTAT	TCAAGCTGTA	GCCTTGGGTC
8251	ATCCTGCCAC	TACGCATTCT	GAATTATTG	ATTATGTCAT	CGTAGAAGAT
8301	GATTATGTGG	GCAGGTGAAGA	TTGTTAGC	GAAACCCTT	TACGCTTAC
8351	CAAAGATGCC	CTACCTTATG	TACCATCTGC	ACTCGCCCCA	CAAAAAGTGG
8401	ATTATGTA	CAGGGAAAAC	CCTGAAGTAG	TCAATTATCGG	TATTGCCGCT
8451	ACCACAAATGA	AATTAAACCC	TGAATTTTG	CTAACATTCG	AAGAAATCAG
8501	AGATAAAGCT	AAAGTCAAA	TACATTTC	TTTCGGCACT	GGACAATCAA
8551	CAGGCTTGAC	ACACCCTTAT	GTCAAATGGT	TTATCGAAAG	CTATTAGGT
8601	GACGATGCCA	CTGCACATCC	CCACGGCACCT	TATCACCGAT	ATCTGGCAAT
8651	ATTGC GTGAT	TGGGATATGC	TACTAAATCC	GTTCCTTTC	GGTAATACTA
8701	ACGGCATTAAT	TGATATGGTT	ACATTAGGT	TAGTTGGTGT	ATGCCAAAAACG
8751	GGGGATGAAG	TACATGAACA	TATTGATGAA	GGTCTGTTA	AACGCTTAGG
8801	ACTACCAGAA	TGGCTGATAG	CCGACACACG	AGAAACATAT	ATTGAATGTG
8851	CTTTGCCGTCT	AGCAGAAAC	CATCAAGAAC	GCCTTGAACT	CCGTCGTTAC
8901	ATCATAGAAA	ACAACGGCTT	ACAAAAGCTT	TTTACAGGGCG	ACCCCTCGTCC
8951	ATTGGGAAA	ATACTGCTTA	AGAAAACAAA	TGAATGGAAG	CGGAAGCACT
9001	TGAGTAAAAA	ATAACGGTTT	TTAAAGTAA	AAGTGC GGTT	AATTTCAAA

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FIG. 6L.

9051	GCGTTTAAA	AACCTCTCAA	AAATCAACCG	CAC'TTTATC	TTTATAACGC
9101	TCCCGCGCGC	TGACAGTTA	TCTCTTTCTT	AAAATACCCA	TAAAATTGTG
9151	GCAATAGTTG	GGTAATCAA	TTCAATTGTT	GATACGGCAA	ACTAAAGACG
9201	GCGCGTTCTT	CGGCAGTCAT	C		

FIG. 7A.

1 CGCCCACTTCA ATTTGGGATT GTTGAAATTCA AACTAACCAA AAAGTGC GGTT
51 TAAATCTGT GGAGAAAATA GGTTGTAGTC AAGAACGGAGG TAATTGTTCA
101 AAAGGATAAA GCTCTCTAA TTGGGCATTG GTTGGCGTTT CTTTTCGGGT
151 TAATAGTAAAT TTATATTCTG GACGACTATG CAATCCACCA ACAACTTTAC
201 CGTTGGTTT AAGCGTTAAAT GTAAGTTCTT GCTCTTCTTG GCGAATACGT
251 AATCCCAATT TTTGTTTAGC AAGAAAATGA TCGGGATAAT CATAATAAGGT
301 GTTGCCCCAA ATAATTTT GATGTTCTAA AATCATAAAAT TTGCAAGAT
351 ATTGTTGCAA TCCAATACCT ATTGTGGCG AAATGCCAA TTTTAATTCA
401 ATTTCCTTGT ACGATAATT TCCCACCTCAA ATCAACTGGT TAAATATA
451 AGATAATAAA ATAATCAA GATTGGTGTG ATGACAAACA ACAATTACAA
501 CACCTTTTGCAGTCTATA TGCAAATATT TTAAAAAAAT AGTATAAATC
551 CGCCATATAA AATGGTATAA TCTTTCATCT TTCACTCTTC ATCTTTCATC
601 TTTCATCTTT CACTTTCAT CTTTCATCTT TCATCTTCA TCTTTCATCT
651 TTTCATCTTC ATCTTTCATC TTTCATCTT CACATGAAAT GATGAACCGA
701 GGGAAAGGGAG GGAGGGCAA GAATGAGAG GGAGCTGAAC GAACGCAAAT
751 GATAAAAGTAA TTAAATTGTT CAACTAACCT TAGGAGAAA TATGAACCAAAG

FIG. 7B.

801 ATATATCGTC TCAAATTCAAG CAAACGGCCTG AATGCCCTG TTGCTGTGTC
851 TGAATTGGCA CGGGTTGTG ACCATCCAC AGAAAAAGGC AGCGAAAAAC
901 CTGCTCGCAT GAAAGTGCCT CACTTAGCGT TAAAGCCACT TTCCGCTATG
951 TTACTATCT TAGGTGTAAC ATCTATTCCA CAATCTGTT TAGCAAGCGG
1001 CAATTAAACA TCGACCAAAA TGAAATGGTG CAGTTTTAC AAGAAAACAA
1051 GTAATAAAC CATTATCCGC AACAGTGTTC ACGCTATCAT TAATTGGAAA
1101 CAATTAAACA TCGACCAAAA TGAAATGGTG CAGTTTTAC AAGAAAACAA
1151 CAACTCCGCC GTATTCAACC GTGTTACATC TAACCAAATC TCCCCAATTAA
1201 AAGGGATTAG ATTCTAAC GGACAAGTCT TTTAAATCAA CCCAAATGGT
1251 ATCACAAATAG GTAAAGACGC AATTATTAAAC ACTAATGGCT TTACGGCTTC
1301 TACGCTAGAC ATTCTAACG AAAACATCAA GGGCGGTAAAT TTCACCTTCG
1351 AGCAAACCAA AGATAAAGCG CTCGCTGAAA TTGTGAATCA CGGTTTAATT
1401 ACTGTGGTA AAGACGGCAG TGTAAATCTT ATTGGTGGCA AAGTGAAAAA
1451 CGAGGGTGTG ATTAGCGTAA ATGGTGGCAG CATTTCTTTA CTCGCAGGGC
1501 AAAAAATCAC CATCAGGCAT ATAATAAACC CAACCATTAC TTACAGCATT
1551 GCCGGCGCCTG AAAATGAAGC GGTCAATCTG GGGGATATT TTGCCAAAGG

FIG. 7C.

1601 CGGTAACAT AATGTCCGTG CTGCCACTAT TCGAAACCAA GGTAAACTTT
1651 CTGGCTGATTCT TGTAAGCAA GATAAAAGCG GCAATATTGT TCTTTCGGCC
1701 AAAGAGGGTG AAGCGGAAT TGGCGGTGTA ATTTCGGCTC AAAATCAGCA
1751 AGCTAAAGGC GGCAAGCTGA TGATTACAGG CGATAAAAGTC ACATTAAGAA
1801 CAGGTGCAGT TATCGACCTT TCAGGTAAG AAGGGGGAGA AACTTACCTT
1851 GGGGGTGACG AGCGCGGCGA AGGTAAAAAC GGCATTCAAT TAGCAAAGAA
1901 AACCTCTTTA GAAAAGGCT CAACCATCAA TGTATCAGGC AAAGAAAAAG
1951 GCGGACGGCGC TATTGTGG GGCGATATTG CGTTAATTGA CGGCAATATT
2001 AACGGCTCAAG GTAGTGGTGA TATCGCTAAA ACCGGTGGTT TTGTGGAGAC
2051 ATCGGGCAT TATTATCCA TTGACAGCAA TGCAATTGTT AAAACAAAG
2101 AGTGGTTGCT AGACCCCTGAT GATGTAACAA TTGAAGCCGA AGACCCCTT
2151 CGCAATAATA CCGGTATAAA TGATGAATTG CCAACAGGCA CCGGGTGAAGC
2201 AAGCGACCCCT AAAAAAATA GCGAACCTCAA AACAAACGCTA ACCAATACAA
2251 CTATTCAA TTATCTGAAA AACGCCCTGGA CAATGAATTG AACGGCATCA
2301 AGAAAACCTTA CCGTTAATAG CTCAATCAAC ATCGGAAGCA ACTCCCCACTT
2351 AATTCTCCAT AGTAAAGGTC AGCGTGGCGG AGGCGTTCAAG ATTGATGGAG
2401 ATATTACTTC TAAAGGGAA AATTAAACCA TTATTCCTGG CGGATGGGT

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FIG. 7D.

2451 GATGTTCAT AAAATTAC GCTTGATCAG GGTTTTTAA ATATTACCGC
2501 CGCTTCCGTA GCTTTGAAAG GTGGAATAA CAAAGCACGC GACGGGCCA
2551 ATGCTAAAAT TGTGCCAG GGCACGTAA CCATTACAGG AGAGGGAAA
2601 GATTTCAGGG CTAACAACGT ATCTTTAAC GGAACGGTA AAGGTCTGAA
2651 TATCATTCA TCAGTGAATA ATTAAACCC CAATCTTAGT GGCACAAATT
2701 ACATATCTGG GAATATAACA ATTAACCAA CTACGAGAA AACACCTCG
2751 TATTGGAAA CCAGCCATGA TTTCGCACTGG AACGTCAGTG CTCTTAATCT
2801 AGAGACAGGC GCAAAATTAA CCTTTATTA ATACATTCA AGCAATAGCA
2851 AAGGCTTAAC AACACAGTAT AGAAGCTCTG CAGGGGTGAA TTTTAACGGC
2901 GTAAATGGCA ACATGTCAT CAATCTCAA GAAGGAGCGA AAGTTAATT
2951 CAAATTAAA CCAAAACGAGA ACATGAACAC AAGCAAACCT TTACCAATT
3001 GGTTTTAGC CAATATCACA GCCACGTG TGTTTTTGAT
3051 ATATATGCCA ACCATTCTGG CAGAGGGCT GAGTTAAAAA TGAGTGAAAT
3101 TAAATATCTCT AACGGCGCTA ATTTCACCTT AAATTCCCCT GTTCGGGGCG
3151 ATGACGCTTT TAAAATCAAC AAAGACTTAA CCATAAAATGC AACCAATTCA
3201 AATTTCAGGCC TCAGACAGAC GAAAGATGAT TTTTATGACG GGTACGGCACG

FIG. 7E.

3251 CAATGCCATC AATTCAAACCT ACAACATATC CATTCTGGGC GGTAAATGTC
3301 CCCTTGGTGG ACAAAACTCA AGCAGCAGCA TTACGGGAA TATTACTATC
3351 GAGAAAGCAG CAAATGTTAC GCTAGAAGCC ATAACGCC CTAATCAGCA
3401 AACATAAGG GATAGAGTTA TAAAACTTGG CAGCTTGCTC GTTAATGGGA
3451 GTTTAAGTTT AACTGGCGAA AATGCAGATA TAAAGGCAA TCTCACTATT
3501 TCAGAAAGCG CCACTTTAA AGGAAAGACT AGAGATAACCC TAAATATCAC
3551 CGGCAATTTC ACCAATAATG GCACTGCCGA ATTAAATAA ACACAAGGAG
3601 TGGTAAACT TGGCAATGTT ACCAATGATG GTGATTAAA CATTACCACT
3651 CACGCTAAC GCAACCAAAG AAGCATCATC GCGGAGATA TAATCAACAA
3701 AAAAGGAAGC TTAATATTA CAGACAGTAA TAATGATGCT GAAATCCAAA
3751 TTGGCGGCAA TATCTCGCAA AAAGAAGGCA ACCTCACCGAT TTCTTCCGAT
3801 AAAATTAAATA TCACCAAACA GATAACAATC AAAAAGGGTA TTGATGGAGA
3851 GGACTCTAGT TCAGATGCGA CAACTAATGC CACCTAACT ATTAAAACCA
3901 AAGAATTGAA ATTGACAGAA GACCTAAGTA TTTCAGGTT CAATAAGCA
3951 GAGATTACAG CCAAAGATGG TAGAGATTAA ACTATGGCA ACAGTAATGA
4001 CGGTAACAGC GGTGCCGAAG CCAAAACAGT AACTTTAAC AATGTTAAAG

FIG. 7E.

4051	ATTCAAAAT	CTCTGCTGAC	GGTCACAATG	TGACACTAA	TAGCAAAGTGTG
4101-	AAAACATCTA	GCAGCAATGG	CGGACCGTGAA	AGCCAATAGCG	ACAAACGATACTG
4151	CGGCTTAACT	ATTACTGCAA	AAAATGTAGA	AGTAAACAAA	GATATTACTT
4201	CTCTCAAAAC	AGTAAATATC	ACCGGGTCCGG	AAAAGGTTAC	CACCACAGCA
4251	GGCTCCGACCA	TTAAGCAAC	AAATGGCAA	GCAAGTATA	CAACCAAAAC
4301	AGGTGATATC	AGCCGGTACGA	TTTCCGGTAA	CACGGTAAGT	GTTAGCCGGA
4351	CTGGTGATT	AACCACTAA	TCCGGCTCAA	AAATTGAAGC	GAAATCGGGT
4401	GAGGCTAATG	TAACAAGTGC	AACAGGTACA	ATTGGCGGTA	CAATTTCGGG
4451	TAATAACGGTA	AATGTTACGG	AAACACGCTGG	CGATTAAACA	GTTGGGAATG
4501	GCGCAGAAAT	TAATGGACAA	GAAGGGAGCTG	CAACCTTAAC	CGCAACAGGG
4551	ATAACCTTGA	CTACTGAAAGC	CGGTTCTAGC	ATCACTTCAA	CTAAGGGTCA
4601	GGTAGACCTC	TTGGCTCAGA	ATGGTAGGCAT	CGCAGGAAGC	ATTAAATGCTG
4651	CTAATGTGAC	ATAAAATACT	ACAGGCCACCT	TAACCACCGT	GGCAGGGCTCG
4701	GATATTAAAG	CAACCAGGG	CACCTTGGTT	ATTAAACGCAA	AAGATGCTAA
4751	GCTAAATGGT	GATGCATCAG	GTGATAGTAC	AGAAGTGAAT	GCAGTCAAACG
4801	ACTGGGGATT	TGGTAGTGTG	ACTGGGGCAA	CCTCAAGCAG	TGTGAATATC
4851	ACTGGGGATT	TAACACAGT	AAATGGTTA	AATATCATT	CGAAAGATGG

FIG. 7G.

4901	TAGAAACACT	GTGCCCTTAA	GAGGCAAGGA	AATTGAGGTG	AAATATATCC
4951	AGCCAGGTGT	AGCAAAGTGT	GAAGAAGTAA	TTGAAGCGAA	ACGGCGTCCTT
5001	GAAAAGTAA	AAGATTTATIC	TGATGAAGAA	AGAGAAACAT	TAGCTAAACT
5051	TGGTGTAACT	GCTGTACGTT	TTGTTGAGCC	AAATAATACA	ATTACAGTCA
5101	ATACACAAAA	TGAATTTACA	ACCAGACCGT	CAAGTCAAAGT	GATAATTCT
5151	GAAGGTAAGG	CGTGTTCCTC	AAGTGGTAAT	GGGCCACGG	TATGTACCAA
5201	TGTTGCTGAC	GATGGACAGC	CGTAGTCAGT	AATTGACAAG	GTAGATTCA
5251	TCCTGCAATG	AAGTCATT	ATTTTCGTAT	TATTTACTGT	GTGGGTTAAA
5301	GTCAGTACG	GGCTTTACCC	ATCTTGTAAA	AAATTACGGA	GAATACAAATA
5351	AAGTATTTT	AACAGGTTAT	TATTATGAAA	AATATAAAA	GCAGATTAAA
5401	ACTCAGTGCA	ATATCAGTAT	TGCTTGGCCT	GGCTTCTTCA	TCATTGTATG
5451	CAGAAGAACG	GTTTTAGTA	AAAGGCTTTC	AGTTATCTGG	TGCACTTGAA
5501	ACTTTAAGTG	AAGACGCCA	ACTGTCTGTA	GCAAAATCTT	TATCTAAATA
5551	CCAAGGCTCG	CAAACTTAA	CAAACCTAA	AACAGCACAG	CTTGAATTAC
5601	AGGCTGTGCT	AGATAAGAT	GAGCCAAATA	AATTGATGT	GATATTGCCG
5651	CAACAAACCA	TTACGGATGG	CAATATCATG	TTTGAGCTAG	TCTCGAAATC

FIG. 7H.

5701 AGCCGCAGAA AGCCAAGTTT TTTATAAGGC GAGCCAGGGT TATAGTGAAG
5751 AAAATATCGC TCGTAGCCTG CCATCTTGTGA ACAAGGAAA AGTGTATGAA
5801 GATGGTCGTC AGTGGTTCGA TTGCGTGAA TTTAATATGG CAAAGAAAA
5851 CCCGCTTAAG GTTACCCGTG TACATTACGA ACTAAACCTT AAAAACAAA
5901 CCTCTTAATT GATAATTGGC GGCTTCTCGC CTTTGGTAA AACGGTAGC
5951 TTATTTCTT ATGATAATT CGGGCGGAGA GAGTTAACT ACCAACGTTG
6001 AAGCTTGGGT TTTGTTAATG CCAATTAAAC TGGTCATGAT GATGTTAA
6151 TTATACCAGT ATGAGTTATG CTGATTCTAA TGATATCGAC GGCTTACCAA
6201 GTGCGATTAA TCGTAAATT TCAAAAGGTC AATCTATCTC TGGAAATCTG
6251 AAATGGAGTT ATTATCTCCC AACATTAAC CTTGGCATGG AAGACCAATT
6301 TAAAATTAAAT TTAGGCTACA ACTACGCCA TATTAAATCAA ACCTCCGGGT
6351 TAAATCGCTT GGGTGAACG AAGAAAAAT TTGCAGTATC AGGGCTAAGT
6401 GCAGGCATTG ATGGACATAT CCAATTACC CCTAAACAA TCTTTAATAT
6451 TGATTTAACT CATCATTACGTT ACGCGAGTAA ATTACCAAGGC TCTTTGGAA
6501 TGGAGGCAT TGGCGAAACA TTTAATCGCA GCTATCACAT TAGCACAGCC
6551 AGTTTAGGGT TGAGTCAAGA GTTGTGCTCAA GGTTGGCATT TAGCAGTC
6601 ATTATCAGGGT CAATTACTC TACAAGATAT TAGCAGTATA GATTATTCT

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FIG. 7I.

6651	CTGTAACAGG	TACTTATGGC	GTCAGAGGCT	TTAAATAACGG	CGGTGCAAGT
6701	GGTGAGCCGG	GTCTTGATG	GCGTAATGAA	TTAAGTATGC	CAAATACAC
6751	CCGCTTCCAA	ATCAGCCCCTT	ATGCCGTTTA	TGATGCAGGT	CAGTCCGTT
6801	ATAATAGCGA	AAATGCTAAA	ACTTACGGCG	AAGATATGCA	CACGGTATCC
6851	TCTGCCGGTT	TAGGCATTAA	AACCTCTCCT	ACACAAACT	TAAGCCTAGA
6901	TGCTTTTGTT	GCTCGTCGCT	TTGCCAAATGC	CAATAGTGAC	AATTGAAATG
6951	GCAACAAAAA	ACGGCACAAAGC	TCACCTACAA	CCTTCTGGGG	GAGATTAAACA
7001	TTCAGTTCT	AACCCTGAAA	TTTAATCAAC	TGGTAAGCGT	TCCGCCCTACC
7051	AGTTTATAAC	TATATGCTTT	ACCCGCCAAT	TTACAGTCTA	TAGGCAACCC
7101	TGTTTTTAC	CTTATATATC	AAATAAACAA	GCTAAGCTGA	GCTAAGCAA
7151	CCAAGCAAAAC	TCAAGCAAGC	CAAGTAATAC	AAAAAAACA	ATTATATGAA
7201	TAAACTAAAG	TATACTCCAT	GCCATGGCA	TACAAGGGAT	TTAATAATAT
7251	GACAAAAGAA	ATTTCGCAAA	ACGGCTCCTCA	AGATGGGACC	GCTTTACTTG
7301	CGGAATTAAAG	CAACAAATCAA	ACTCCCCCTGC	GAATATTAA	ACAAACCCACCG
7351	AAGCCCCAGCC	TATTACGCTT	GGAAACAACAT	ATCGCAAAAA	AAGATTATGAA
7401	GTTTGCTTGT	CGTGAATTAA	TGGTGATTCT	GGAAAAAATG	GACGCTAATT

FIG. 7J.

7451 TTGGAGGGGT TCACGGATATT GAATTGGACCG CACCCGCTCA GCTGGCATAT
7501 CTACCCGAAA ATTACTAAT TTATTTTGCC ACTCGTCTCG CTAATGCAA
7551 TACAACACTC TTTTCCGACC CCGAAATTGGC AATTCTGAA GAAGGGCGT
7601 TAAAGATGAT TAGCCTGCAA CGCTGGTGA CGCTGATTTC TGCCCTCTCC
7651 CCCTACGTTA ACGCAGACCA TATTCTCAAAT AAATAATAAA TCAACCCAGA
7701 TTCCGAAGGT GGCTTTCAATT TAGCAACAGA CAACTCTTCT ATTGCTAAAT
7751 TCTGTATTTC TTACTTACCC GAATCCAATG TCAAAATGAG TTTAGATGCG
7801 TTATGGCAG GGAATCAACAA ACTTTGTGCT TCATTGTGTT TTGCGTTGCA
7851 GTCTTCACCGT TTATGGTA CCGCATCTGC GTTTCATAAA AGAGGGTGG
7901 TTTACAGTG GTTCCCTAAA AAACCTGCG AAATTGCTAA TTAGATGAA
7951 TTGCCTGCAA ATATCCTCA TGATGTATAT ATGCACGTGCA GTTATGATT
8001 AGCAAAAAAC AAGCACCGATG TTAAAGCGTCC ATTAAACGAA CTTGTCCGCA
8051 AGCATATCCT CACGCAAGGA TGGCAAGAAC GCTACCTTA CACCTTAGGT
8101 AAAAAGGACG GCAAACCTGT GATGATGGTA CTGCTTGAAC ATTAAATTG
8151 GGCACATTG. ATTATCGTA CACATTCAAC TTCAATGATT GCTGCTCGAG
8201 AAAAATTCTA TTTAGTCGGC TTAGGCCATG AGGGCCATG TAAAATAGGT

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FIG. 7K.

8251	CGAGAAGTGT	TTGACCGAGTT	CTTTGAAATC	AGTAGCAAATA	ATATAATGGA
8301	GAGACTGTTT	TTTATCCGTA	AACAGTGCAG	AACTTTCCAA	CCCCCAGTGT
8351	TCTATATGCC	AAGCATTGGC	ATGGATATTA	CCACGGATT	TGTGAGCAAC
8401	ACTCGGGCTTG	CCCCTATTCA	AGCTGTAGCC	CTGGGTCACTC	CTGCCACTAC
8451	GCATTCTGAA	TTTATTGATT	ATGTCATCGT	AGAAGATGAT	TATGTGGCA
8501	GTGAAGATTG	TTTCAGCGAA	ACCCTTTAC	GCTTACCCAA	AGATGCCCTA
8551	CCTTATGTAC	CTTCTGCACT	CGCCCCACAA	AAAGTGGATT	ATGTACTCAG
8601	GGAAAACCCT	GAAGTAGTCA	ATATCGGTAT	TGCCGCTACC	ACAATGAAAT
8651	TAAACCTGAA	ATTTTGCTA	ACATTGCAAG	AAATCAGAGA	TAAGCTAAA
8701	GTCAAATAC	ATTTTCATT	CGCACTTGGAA	CAATCAACAG	GCTTGACACA
8751	CCCTTATGTC	AAATGGTTA	TCGAAAGCTA	TTTAGGTGAC	GATGCCACTG
8801	CACATCCCCA	CGCACCTTAT	CACGATTATC	TGGCAATATT	GATTTGATTG
8851	GATATGCTAC	TAATTCGTT	TCCTTTGGT	AATACTAACG	GGGTGATTGCA
8901	TATGGTTACA	TTAGGTTAG	TTGGTGTATG	CAAACGGGG	CATGAAGTAC
8951	ATGAAACATAT	TGATGAAGGT	CTGTTAAC	GCTTAGGACT	ACCAGAAATGG
9001	CTGATAGCCG	ACACACGAGA	AACATATATT	GAATGTGCTT	TGCGTCTAGC
9051	AGAAAACCAT	CAAGAACGCC	TTGAAACTCCG	TCGTTACATC	ATAGAAAACA

FIG. 7L.

9101	ACGGCTTACA	AAAGCTTTTT	ACAGGGGACCC	CTCGTCCATT	GGGCAAAATA
9151	CTGCTTAAGA	AAACAAATGA	ATGGAAGGG	AAGCACTTGA	GTAAAAAATA
9201	ACGGTTTTT	AAAGTAAAAG	TGCCGGTTAAT	TTTCAAAGCG	TTTTAAAAC
9251	CTCTCAAAA	TCAACCGCAC	TTTTATCTTT	ATAACGATCC	CGCACGGCTGA
9301	CAGTTATCA	GCCTCCCCGCC	ATAAAACCTCC	GCCTTTCATG	GCGGAGATT
9351	TAGCCAAAC	TGGCAGAAAT	TAAAGGCTAA	AATCACCAA	TTGCACCCACA
9401	AAATCACCAA	TACCCACAAA	AAA		

FIG. 8A

1 ATGAAACAAGA TATACTCGTCT CAAATTACAGC AAACGGCTGA ATGCTTTGGT
TGCTGTGTCCT GAATGACAC CGGGTTGTGA CCATTCCACA GAAAAAGGCA

101 GTGAAAAAACC TGTTCTGTACG AAAGTACGCC ACTTGGCGTT AAAGCCACTT
TCGGCTATAT TGCTATCTT GGGCATGGCA TCCATTCCGC AATCTGTTTT

201 AGCGAGCGGT TTACAGGAA TGAGGCTCGT ACACGGTACA GCACCCATGC
AAGTAGACGG CAATAAAACC ACTATCGTA ATAGCGTCAA TGCTATCATC

301 AATTGGAAAC AATTAAACAT TGACCAAAAT GAAATGGTGC AGTTTTTACA
AGAAAGGAGC AACTCTGCCG TITICACCCG TGTACATCT GACCAATCT

401 CCCAAATTAAA AGGGATTTTA GATTCTAACG GACAAGTCTT TTAAATCAC
CCAATCGTA TCACAATAGG TAAAGACCGA ATTAAACA CTAATGGCTT

501 TACTGCTTCT ACGCTAGACA TTCTAACGA AACATCAAG GCGCTTAATT
TCACCCCTGA GCAAMCCAAG GATAAAGCAC TCGCTGAAAT CGTCAATCAC

601 GGTTTAATTAA CCGTTGGTAA AGACGGTAGC GTAAACCTTA TTGGTGGCAA
AGTGAAC GAGGGCGTGA TTAGCGTAAA TGCGGTAGT ATTCTCTAC

701 TTGGAGGGCA AAAAATCACC ATCAGCGATA TAATAAATCC ACCATCACT
TACAGCATTC CTGGCACCTGA AAACGAAGCG ATCAATCTGG CGCGATTTT

FIG 8B

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801 TGCCTAACATTAA ATGTCGGCGC TGCCACTATT CCCAATAAAG
GTAACCTTTC TGCCGACTCT GTAAAGCAAG ATAAAAGTGG TAACATTTGT
901 CTCTCTGCCA AAGAAGGTGA AGCGGAATT GCGCGGTAA TTTCGGCTCA
AAATCAGCAA GCCAAAGGTG GTAAGTTGAT GATTACAGGGC GATAAAGTTA
1001 CATTCAAAAC GGGTCCAGTT ATCGACCTTT CGGTTAAAGA AGGGGAGAA
ACTTATCTTG GCGGTGACCA GCGTGGCGAA GGTAAAAACG GCATTCAATT
1101 AGCAAAGAAA ACCACTTTAG AAAAAGGCTC ACAATTAAAT GTTCAGGTA
AGAAAAAGG TGGGGGGCT ATTGTATGGG GCGATATTGC GTTAATTGAC
1201 CGCAATATTAA ATGCCCAAGG TAAAGATATC GCTAAACCTG GTGGTTTTGT
CGAGACGTGCG GGGCAATTACT TATCCATTGA TGATAACCA ATTGTAAAAA
1301 CAAAGAATG GCTACTAGAC CCAGAGAATG TGAECTATTGA AGCTCCCTTC
GCTTCTCGCG TCGAGCTGGG TGGCGATAGG AATTCCACT CGGCAGAGGGT
1401 GATAAAAGTG ACCCTAAAAA AAAATAACAC CTCCCTTGACA ACACAAACCA
ATACAAACCAT TTCAAATCTT CTGAAAGTGT CCCACGTGCGT GAACATAACG
1501 GCAAGGAGAA AACTTACCGT TAATAGCTCT ATCAGTATAG AAAGAGGCTC
CCACTTAATT CTCCACAGTG AAGGTCAAGGG CGGTCAAGGT GTTCAGATTG

FIG.8C

1601 ATAAAGATAT TACTCTGAA GCGGAAATT TAACCATTTA TTCTGGGGA
 TGGGTGATG TTCAATAAAA TATTACGCTT GGTAGCCGCTT TTITAAACAT

1701 CACAACCAA GAAGGAGATA TCGCCTTCGA AGACAAGTCT GGACCGAACAA
 ACCTAACCAT TACAGCCCCA GGGACCATCA CCTCAGGTAA TAGTAACGCC

1801 TTAGATTTA ACAACGTCTC TCTAACACAGC CTTCGGAA AGCTGACCTT
 TACTGACAGC AGAGAGGACA GAGGTAGAAG AACTAAGGGT AATATCTCAA

1901 ACMAATTGCA CGGAACGTT AACATTTCGG GAACGTAGA TATCTCAATG
 AAAGCACCCA AAGTCAGCTG GTTTACAGA GACAAGGAC GCACCTACTG

2001 GAACGTAACC ACTTTAAATG TTACCTCGGG TAGTAATT TAACTCTC
 TTGACAGCAC AGGAAGTGGC TCAACAGGTCAAGCATACCG CAATGGAGAA

2101 TTAATGGCA TAACATTTAA TAAAGCCACT TTTAATATCG CACAGGCTC
 AACAGCTAAC TTTCAGCATCA AGGCATCAAT AATGCCCTT AAGAGTAACG

2201 CTAACCTACGC ATTATTAAT GAAGATATT CAGTCCTCAGG GGGGGTAGC
 CTTAATTCA AACTTAACGC CTCATCTAGC AACATACAAA CCCCTGGGCT

2301 AATTATAAAA TCTCAAAACT TTAATGTCCTC AGGAGGGTCA ACTTTAACATC
 TCAAGGGCTGA AGGTCAACA GAAACCGCTT TTCAATTACA AAATGATTAA

FIG.8D

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2401 AACTAAACG CCACCGGTGG CAATATAACA ATCAGACAAG TCCAGGGTAC
CGATTCAACG GTCAACAAAG GTCCTGGCAGC CAAAAAAC ATAACCTTTA

2501 AAGGGGTAA TATCACCTTC GGCTCTCAA AAGCCACAA AGAAATCAA
GCCAATGTAA CCATCAATA AACACTAAC GCTACTCTT GTGGTGGGA

2601 TTITGCCAA ACAAAATCGC CTITAAATAT ACCAGGAAT GTTAAATAA
ATGGCAACT TACCACTGCC GGCTCCATTAA TCAATATAGC CGGAAATCTT

2701 ACTGTTCAA AAGGGGCTAA CCTTCAGCT ATAACAAATT ACACCTTTAA
TGTAGGCCGC TCATTTGACA ACAATGGCGC TTCAAAACATT TCCATTGCCA

2801 GAGGAGGGCC TAAATTAAA GATATCAAATA ACCACAGTAG CTTAAATATT
ACCAACCT CTGATAACCAC TTACCCGACC ATTATAAAG GCAATATACT

2901 CAACAAATCA GGTGATTCA ATATTATGCA TAAAAAAGC GACCGCTGAAA
TCCAATTGG CGGCAATATC TCACAAAAAG AAGGCCATCT CACAATTCT

3001 TCTGATAAAG TAAATATTAC CAATCAGATA ACAATCAAAG CAGGGCTTGA
AGGGGGCGT TCTGATTCAA GTGAGGGCAGA AAATGCTAAC CTAACTATIC

3101 AAACCAAAGA GTTAAATTG GCAGGGAGACC TAAATATTTC AGGCCTTAAT
AAAGCAGAAA TTACAGCTAA AAATGCGACT GATTAACTA TGGCAATGC

FIG. 8E

3201 TAGCCGTGCT AATGCTGTAGT CTAAGAAAAGT GACTTTTGAC AAGGTAAAG
ATTCAAAAAT CTCGACTGAC GGTCACTAATG TAACACTAAA TAGCGAAGTG
3301 AAAACGTCTA ATGGTAGTAG CAATGCTGGT AATGATAACA GCACCGGTT
ACCATTTC GCAAAAGATG TAACCGTAAA CAATAACGTT ACCTCCACA
3401 AGACAATAAA TATCTCTGCC GCAGGCAGGAA ATGTAACAAAC CAAGAACCGC
ACAACTATCA ATGCAACCAC AGGCACGGTG GAAGTAACTG CTCAAATGG
3501 TACAATTAAA GGCAACATTA CCTCGAAAA TGTAAACAGTG ACAGGAACAG
AAAATCTTGT TACCAACAGAG AATGCTGTCA TTAATGCAAC CAGGGCACCA
3601 GTAAACATTA GTACAAAAAC AGGGATATT AAAGGTGAA TTGAATCAAC
TTCGGTAAT GTAAATATTAA CAGCGAGGG CAATAACATT AAGGTAAGTA
3701 ATATCACTG TCAACATGTA ACAGTAACAG CGGATGGAG AGCCTTGACA
ACTACAGGAG GCTCAACCATT TAGTGGACA ACAGGCATG CAAATATTAC
3801 AACCAAAACA GGTGATATCA ACGGTAAAGT TGAATCCAGC TCCGGCTCTG
TAACACTTGT TGCAACTGGA GCAACTCTTG CTGTAGGTAAT TATTTCAGGT
3901 AACACTGTAA CTATTACTGCG CGATAGGGT AAATTAACCT CCACAGTAGG
TTCTACAAATT AATGGGACTA ATAGTGTAAAC CACCTCAAGC CAATCAAGG

FIG. 8F

4001 ATATTGAAGG TACAATTCTT GGTAAATACAG TAAATGTTAC AGCPAGCCT
GGTGATTAA CTATTCGAAA TAGTGCAGAA GTTGAAGCGA AAAATGGAGC

4101 TGCAACCTTA ACTGCTGAAT CAGGCCAATT AACCCACCAA ACAGGGCTCA
GCATTACCTC AAGCAATGTT CAGACAACTC TTACAGCCAA GGATAGGAGT

1201 ATCCGAGGA ACATTAATGCG TGCTTAATGTC ACGTTAAATA CCACACGGCAC
TTTAACTACT ACAGGGATT CAAAGATTAA CGCAACCAGT GGTACCTTAA

301 CAATCAATGCG AAAAGATGCC AAATTAGATG GTGCTGCATC AGGTGACCC
ACAGTAGTAA ATGCAACTAA CGCAAGTGGC TCIGGTAACG TGACTGGAA

401 AACCTCAAGC AGCGTGAATA TCACCGGGA TTAAACACA ATAATCGGT
TAATATCAT TTCCGAAAT GGTAGAAACA CTGTCGCCCT AAGAGGCAAG

501 GAAATTGATG TGAATATATAT CCAACCAGT GTAGCAAGCG TAGAAGAGGT
AATGAAAGCG AAACCGGTCC TTGAGAGGT AAAAGATTAA TCTGATGAAG

501 AAAGAGAAC ACTAGCCAAA CTGGGTAA GTGCTGTACG TTTCGTTGAG
CCAATAATG CCATTACGGT TAATACACAA ACCGAGTTA CAACCAAACC

'01 ATCAAGTCAA GTGACAAATT CTGAAGGTA GGCGTGTTC TCAAGTGGTA
ATGGGGCAGC AGTATGTACC AATGTTGCTG ACGATGGACA GCAG

FIG. 9A

1 ATGAAACAAGA TATATCGTCT CAAATTCAAGC AAACGGCCTGA ATGCCTTTGGT
 TGCCTGCTCT GAATTGACAC GGGGTGTTGCA CCATTCCACA GAAAAGCCA

101 GTGAAAAACC TGTTCGTAAG AAAGTACGCC ACTTGGCGTT AAAGCCACTT
 TCCGCTATAT TGCTATCTTT GGGCATGGCA TCCATTCCGC AATCTGTTTT

201 AGCGAGGGT TTACAGGGAA TGAGGGTCT ACACCGTACA GCACCCATGC
 AAGTAGACGG CAATAAAACC ACTATCCGTA ATAGGGTCAA TGCTATCATC

301 AATTGGAAC AATTAAACAT TGACCAAAAT GAAATGGTC AGTTTTTACA
 AGAAAGCAGC AACTCTGGCG TTTTCAACCG TGTTACATCT GACCAAATCT

401 CCCAATTAAA AGGGATTAA GATTCAACG GACAAGTCTT TTTAATCAC
 CCAAATGGTA TCACAATAGG TAAAGACGCA ATTATTACA CTAATGGCTT

501 TACTGCTCT ACGCTAGACA TTCTCTAACGA AAACATCAAG CCCGCTAAATT
 TCACCCCTGA GCAAACCAAG GATAAACCAC TCGCTGAAT CGTCAATCAC

601 GGTTTAATTAA CCGTTGGTAA AGACGGTAGC GTAAACCTTA TTGGTGGCAA
 AGTGAAAAAC GAGGGGTGA TTAGGGTAGT ATTICCTTAC

701 TTGGAGGGCA AAAAATCACC ATCAGGGATA TAATAAAATCC AACCATCACT
 TACAGGATG CTGCACCTGA AAACGAAGGG ATCAATCTCG GCGATATTTT

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FIG. 9B

801 TGCCAAAGGT CGTAAACATTA ATGTCGGCGC TGCCACTATT CGCAATAAAG
GTAACCTTC TGCCGACTCT GTAAAGCAAAG ATAAAAGTGG TAACATTGGT

901 CTCTCTGCACA AAGAAGGTCA AGCGGAATT GCGGGTGTAA TTTCGGCTCA
AAATCAGCAA GCCAAAGGTG GTAAGTTGAT GATTACAGGT GATAAAGTCA

1001 CATTAAAC AGGTGGAGT ATCGACCTTT CAGGTAAGA AGGGGGAGAG
ACTTATCTTG GCGGTGATGA GCGTGGCGAA GGTAAAAATG GTATTCAATT

1101 ACCGAAGAAA ACCTCTTTAG AAAAAGGCTC GACAATTAAAT GTATCAGGCCA
AGAAAAAGG CGGGCGGCCT ATTGTATGGG GCGATATTGC ATTAATTAAAT

1201 CGTAACATTA ATGCTCAAGG TAGCCGATATT CCTAAAGCTG GCGGCTTGT
GGAAACATCA GGACATGACT TATCCATTGG TGATGATGTG ATTGTTGACCG

1301 CTAAGAGCTG CTTATTAGAC CCAGATGATG TGTCCATTGA AACTCTTACA
TCTGGACCGCA ATAATACCCGG CGAAAMCCAA CGATATACAA CAGGAGATCG

1401 GACTAAAGAG TCACCTAAAG GTAATAGTAT TCTAAACCT ACATTAACAA
ACTCAACTCT TGACGCAAATC CTAAGAAGAG CTTCTTATGT TAATATCACT

501 GCTAAATAATA GAATTATGT TAATAGCTCC ATCAACTTAT CTAATGGCAG
TTAACACTT CACACTAAC GAGATGGAGT TAAAATTAAAC GGTGATATTAA

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FIG.9C

1601 CCTCAACGA AAATCGTAAT TTAACCATTAA AGGAGGCCCT TTGGGTGAT
CTTCATAAAA ACATCACGGCT TGGTACGGGT TTTTGAATA TTGTCGCTCG

1701 GGATTCTGTA GCTTTGAGA GAGAGGGCGA TAAAGGCACT AACGCAACAG
ATGCTCAAAT TACCCGACAA GGGACGATAA CCGTCAATAA AGATGATAAA

1801 CAATTAGAT TCAATAATGAT ATCTATAAC GGGACGGCA AGGGTTAAA
GTTTATGCCA AATCAAATAA ATTICACTCA TAAATTGAT GGGCAAATTAA

1901 ACATATCTGG AATAGTAACA ATTAACCAA CCACGAAAAA AGATGTTAAA
TACTGGAATG CATCAAAAGA CTCCTACTGG ATGTTTCTT CTCTTACTTT

2001 GAATACGGTG CAAAAATTAA CCTTTATAAA ATTGTTGAT AGGGCTCAA
ATTCCAAGA TTTCAGGTCA TCACGTAGAA GTTTGCAGG CGTACATTIT

2101 AACGGCATCG GAGGCAAAAC AAACCTCAAC ATCGGAGCTA ACGCAAAGC
CTTATTTAAA TTAAACCAA ACGCCGCTAC AGACCCAAA AAAGAATTAC

2201 CTATTACITT TAACGCCAAC ATTACAGCTA CCGGTAACAG TGATAGCTCT
GTCAATGTTTG ACATACACGC CAATCTTACCC TCTAGAGCTG CCGGCATAAA

301 CATGGATTCA ATTAACATTAA CGGGGGGCT TGACTTTTCC ATAACATCCC
ATAATGCCAA TAGTAATGCT TTTGAATCA AAAAAGACTT AACTATAAT

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FIG.9D

2401 GCAAATGGCT CGAAATTAG TCTTAAGCAA ACGAAAGATT CTTTTATAA
TGAATACAGC AAACACGCCA TTAACTCAAG TCATAATCTA ACCATTCTG

2501 GCGGCAATGT CACTCTAGGT GGGGAAATT CAAGCAGTAG CATTACGGGC
ATATCAATA TCACCAATAA AGCAAATGTT ACATTACAAG CTGACACCAG

2601 CAACACCAAC ACAGGCTTGA AGAAAAGAAC TCTAACTCTT GGCATAATAT
CTGTTGAGGG GAATTATAAGC CTAACCTGGC CAAATGCAA CATTTGUGGC

2701 AATCTTCTA TTGAGAGA TTCCACATT AAAGGAGAAG CCAGTGACAA
CTTAACATC ACCGGCACCT TTACCAACAA CGGTACCGCC AACATTAATA

2801 TAAACAAGG AGTGTAAAAA CTCCAAAGCG ATATTATCAA TAAAGCTGGT
TTAAATATCA CTACTAACGC CTCAGGCACT CAAAAACCA TTATTAACGG

2901 AAATATAACT AACGAAAAAG GCGACTTAA CATCAAGAAT ATTAAAGCCG
ACGCCGAAAT CCAAATTGGC GGCAATATCT CACAAAAGA AGCCAATCTC

001 ACAATTCTT CTGATAAAGT AAATATTACC AATCAGATAA CAATCAAAGC
AGCGGTGAA GGGGGCGTT CTGATTCAAG TGAGGCAGAA ATGCTAAC

101 TAACTATTCA AACCAAAGAG TTAAAATTGG CAGGGAGCCT AAATATTCA
GGCTTTAATA AAGCAGAAAT TACAGCTAAA ATGGCAGTG ATTAAACTAT

201 TGGCAATGGCT AGCGGGTGGTA ATGCTGTAGTC TAAAAAAAGTG ACTTTTGACA
AGGTAAAGA TTCAAAAATC TCGACTGACG GTTCACAAATGT AACACTAAAT

FIG.9E

3301 AGCCAAGTGA AAACGCTCAA TGGTAGTAGC AATGCTGGTA ATGATAAACAG
CACCGGTITA ACCATTTCGG CAAAGATGT AACGGTAAAC AATAACGTTA

3401 CCTCCACAA GACAATAAT ATCTCTGCCG CACCAGAAA TGTAACAAACC
AAAGAAGGCA CAACTATCAA TGCACCAACCACA GGCAGCGTGG AAGTAACCTGC

3501 TCAAATGGT ACAATAAG GCAACATTAAC CTGGCAAAT GTAACAGTGA
CAGGAACAGA AAATCTTGT ACCACAGAGA ATGCTGTCAAT TAATGCAACC

3601 AGGGCACAG TAAACATTAG TACAAAACA GGGGATATTAA AGGGGGAAT
TGAAATCAACT TCCGTTAATG TAAATATTAC AGGGAGGGC AATAACACTTA

3701 AGGTAAAGTAA TATCACTGGT CAAGATGTAA CAGTAACAGC GGATGGAGGA
GCCTTGACAA CTACAGCAGG CTCAACCATT AGTGGGACAA CAGGCAATGCG

3801 AAATATTACA ACCAAACAG GTGATATCAA CGGTAAAGTT GAATCCAGCT
CCGGCTCTGT AACACTTGT GCAACTGGAG CAACTCTGC TGTAGCTAAT

3901 ATTTCAGGTA ACACTGGTAC TATTACTGG GATAAGGGTAA ATTTAACCTC
CACAGTAGGT TCTACAAATTA ATGGGACTAA TAGTGTAAAC ACCTCAGGCC

4001 AATCAGGCGA TATTGAAGGT ACAATTTCGT GTAATACAGT AAATGTTACA
GCAAGGCACTG GTGATTTAAC TATTGGAAAT AGTGGAAAAG TTGAAAGCGAA

FIG. 9F

4101 AAATGGAGCT GCAAACCTTAA CTGCTGAATC AGGCAAATTAA ACCACCCAAA
CAGGCCTCTAG CATTACCTCA AGCAATGGTC AGACAACCTCT TACAGCCAAG

4201 GATAAGCGTA TCGCAGGAAA CATTAAATGCT GCTAATGTCA CGTTAAATAC
CACAGGGCACT TTAACTACTA CAGGGGATTIC AAAGATTAAAC GCAACCAGTG

4301 GTACCTTAAC AATCAATGCCA AAAGATGCCA ATTAGATGG TGCTGCATCA
GGTGACCGCA CAGTAGTAAA TGCAACTAAC GCAAGTGGCT CTGGTAACGT

4401 GACTGGAAA ACCCTCAACCA CGCTGAAATT CACCGGGAT TAAACACAA
TAAATGGGTAAATATCATT TCGGAAAATG GTAGAAACAC TGTGGCTTA

5001 AGAGGCAAGG AAATTGATGT GAAATATATTC CAACCAGGT TAGGAAAGGT
AGAAGAGGTAA ATTGAGGCCA AACGGGTCTT TGAGAAGGTA AAAGATTAT

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5101 CTGATGAAACA AAGAGMAACA CTAGCCAAAC TTUGGTGAAG TGCTGTACGT
TTCTGTGACC CAAATAATGCC CATTACGGTT AATACACAAA ACGAGTTAC

5701 AACCAAACCA TCAAGTCAAG TGACAAATTIC TGAAGGTAAG GCGTGTTCCT
CAAGTGGTAA TGGCCGACGA GTATGTACCA ATGTTCTGA CGATGGACAG

5801 CAG

FIG. 10A

COMPARISON OF DERIVED AMINO ACID SEQUENCE

	1						
Hmw3com	MNKIYRLKFS	KRLNALVAVS	ELTRGCDHST	EKGSEKPVRT	KVRHLALKPL		
Hmw4com	MNKIYRLKFS	KRLNALVAVS	ELTRGCDHST	EKGSEKPVRT	KVRHLALKPL		
Hmw1com	MNKIYRLKFS	KRLNALVAVS	ELTRGCDHST	EKGSEKPVRT	KVRHLALKPL		
Hmw2com	MNKIYRLKFS	KRLNALVAVS	ELTRGCDHST	EKGSEKPVRT	KVRHLALKPL	57/82	
	51						
Hmw3com	SAILLSLGMA	SIPQSVLASG	LQGMSV VHGT	ATMQVDENKT	TIRNSVNALL		
Hmw4com	SAILLSLGMA	SIPQSVLASG	LQGMSV VHGT	ATMQVDENKT	TIRNSVNALL		
Hmw2com	SAMILSLGVT	SIPQSVLASG	LQGMSV VHGT	ATMQVDENKT	TIRNSVNALL		
Hmw2com	SAMILSLGVT	SIPQSVLASG	LQGMSV VHGT	ATMQVDENKT	TIRNSVNALL		

FIG. 10B

101	Hmw3com	NWIKQFNIDQN	EMEQFTLQESS	NSAVFNRVTS	DQISQLKSIL	150
	Hmw4com	NWIKQFNIDQN	EMEQFTLQESS	NSAVFNRVTS	DQISQLKGIL	DSNSQVFILIN
	Hmw1com	NWIKQFNIDQN	EMVQFTLQENN	NSAVFNRVTS	NQISQLKGIL	DSNSQVFILIN
	Hmw2com	NWIKQFNIDQN	EMVQFTLQENN	NSAVFNRVTS	NQISQLKGIL	DSNSQVFILIN
151	Hmw3com	PNGITIGKDA	TINTNSFTAS	TLDISNENIK	ARNFTILEQTK	200
	Hmw4com	PNGITIGKDA	TINTNSFTAS	TLDISNENIK	ARNFTILEQTK	DKALAEIVNH
	Hmw1com	PNGITIGKDA	TINTNSFTAS	TLDISNENIK	ARNFTILEQTK	DKALAEIVNH
	Hmw2com	PNGITIGKDA	TINTNSFTAS	TLDISNENIK	ARNFTILEQTK	DKALAEIVNH

FIG. 10C

Hmw3com	GLITVGKDGS	VNLIGGKVKN	EGVITSVNGGS	ISLLAGQKIT	ISDININPTIT	201
Hmw4com	GLITVGKDGS	VNLIGGKVKN	EGVITSVNGGS	ISLLAGQKIT	ISDININPTIT	250
Hmw1com	GLITVGKDGS	VNLIGGKVKN	EGVITSVNGGS	ISLLAGQKIT	ISDININPTIT	
Hmw2com	GLITVGKDGS	VNLIGGKVKN	EGVITSVNGGS	ISLLAGQKIT	ISDININPTIT	59/82
Hmw3com	YSIAAPENEA	TNLGDIFFAKG	GNINVRAATTI	RNKGKLSADS	VSKDKSGNTV	251
						300

FIG. 10D.

Hmw4com	YSIAAPNEA	INLGDIIFAKG	GNINVRRAATI	RNKGKLSADS	VSKDKSGNIV
Hmw1com	YSIAAPNEA	VNLGDIIFAKG	GNINVRRAATI	RNKGKLSADS	VSKDKSGNIV
Hmw2com	YSIAAPNEA	VNLGDIIFAKG	GNINVRRAATI	RNKGKLSADS	VSKDKSGNIV
301					
Hmw3com	LSAKEGEAEI	GGVISAQNQQ	AKGGKLMITG	DKVTLKTGAV	IDLSGKEGGE
Hmw4com	LSAKEGEAEI	GGVISAQNQQ	AKGGKLMITG	DKVTLKTGAV	IDLSGKEGGE
Hmw1com	LSAKEGEAEI	GGVISAQNQQ	AKGGKLMITG	DKVTLKTGAV	IDLSGKEGGE
Hmw2com	LSAKEGEAEI	GGVISAQNQQ	AKGGKLMITG	DKVTLKTGAV	IDLSGKEGGE
350					
Hmw3com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw4com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw1com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw2com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
351					
Hmw3com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw4com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw1com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw2com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
400					
Hmw3com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw4com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw1com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID
Hmw2com	TYLGDERGE	GKNGIQLAKK	TTLEKGSTIN	VSGKEKGGR	IWWDIALID

FIG. 10E.

401

Hmw3.com GNINAQGK.D IAKTGGFVET SGHYLSIDDN AIVKTKEWLL DPENVTEAP
Hmw4.com GNINAQGS.D IAKTGGFVET SGHDLSIGDD VIVDAKEWLL DPDDVSIETL
Hmw1.com GNINAQGSGD IAKTGGFVET SGHDLFIKDN AIVDAKEWLL DPDNVTINAE
Hmw2.com GNINAQGSGD IAKTGGFVET SGHYLSIESN AIVKTKEWLL DPDDVTEAE

451

Hmw3.com SASRVELGAD RNSHSAEVIK VTLKKNNTSL TTLTNNTISN LLKSAHVNNI
Hmw4.com TSGRNNNTGEN QGYTTGDGTK ESPKGNSISK PTLTNSTLEQ ILRRGSYVNI
Hmw1.com TAGRSNTSED DEYTSGNSA STPKRNKE.K TTLTNNTLES ILKKGTFVNI
Hmw2.com DPLRNNNTGIN DEFPTGIGEA SDPKKNSELK TTLTNNTISN YLKNAWTMNI

61/82

501

Hmw3.com TARRKLTVN SISTERGSHL ILHSEGQQGQ GVQIDKDITS .E.. .GGNLT
Hmw4.com TANNRIYVNS SINLSNGS.L TLHTK...RD GVKINGDITS NE.. .NGNLT
Hmw1.com TANQRIYVNS SINL.SNGSL TLWSEGRSGG GVEINNDITI GDDTRGANLT
Hmw2.com TASRKLTVN SINGSNGSHL ILHSKGQRGG GVQIDGDIT. . .SKGGNLT

400

500

550

FIG. 10F.

551

Hmw3.com IYSGGWVDVH KNITLGS.GF LNITTKEGDI AFEDKSGR. . . NNLTTIAQ
Hmw4.com IKAGSWVDVH KNITLGT.GF LNIVAGDS.V AFEREGDKAR NATDAQITAQ
Hmw1.com IYSGGWVDVH KNISLGAQGN INITAKQD.I AFEKGSSNQV. . . . ITGQ
Hmw2.com IYSGGWVDVH KNITLD.QGF LNITA.AS.V AFFEGNNKAR DANNLTIAQ

601

Hmw3.com GTITSG.NSN GFRFNNVSLN SLGGKLSFTD SREDRGRRTK GNISNKFDGT
Hmw4.com GTITVNKDDK QFRFNNVSN GTGKGGLKFIA NQN. NFTHKFDGE
Hmw1.com GTIT.SGNQK GFRFNNVSLN GTGSGLQFTT KRTN. . . . K YAITNKFFGT
Hmw2.com GTVTITGECK DFRANTVSLN GTGKGGLNIIIS SVNN. LTHNLSGT

651

Hmw3.com LNISGTVDIS MKAPKVSWFY RD.KGRTYWN VTTLNVTSGS KFNLSIDSTG
Hmw4.com INISGIVTIN QTTKKDVKYW NA.SKDSYWN VSSLTLNTVQ KFTF.IKFVVD
Hmw1.com LNISGKVNIS MVLPKNESGY DKFKGRTYWN LTSLNVSESG EFNLTIDSRG

600

62/82

700

FIG. 10G.

Hmw2.com INISGNITIN QTTRKNTSYW QTSHD.SHWN VSALNLETGA NFTF.IKYIS

701

Hmw3.com SGSTG...PS IRNA..ELNG ITFN...KA TFNIAQGSTA NFSIKASIMP
Hmw4.com SGSNS...QD LRSSRRSFAG VHFNGIGGKT NFNIGANAKA LFKLKPNAAAT
Hmw1.com SDSAGTLTQ...PYNLNG ISPN...KDT TENVERNARV NFDIKAPIGI
Hmw2.com SNSKGTLTTQY RSSAGVNFG V..N...GNM SFNLKEGAKV NFKLKPNENM

750

63/82
Hmw3.com FKSANYAL. FNEDISVSG. .GGSVNFKLN ASSSNIQTPG VIIKSQNFNV
Hmw4.com DPKKELPT. FNANITATGN SDSSVMFDIH A..NLTNSRA AGINMDSINI
Hmw1.com NKYSSLNYAS FNGNISVSG. .GGSVDFTLI ASSSNVQTPG VVINSKYFNV
Hmw2.com NTSKPLPI.R FLANITATG. .GGSVFFFDIY ANHS...GRG AELKMSEINI

800

850
Hmw3.com SGGSTLNKA EGSTETAFSI ENDLNLNATG GNITIRQVEG T..DSRVNK
Hmw4.com TGGLDFSTS HNRNSNAFEI KKDLTINATG SNFSLKQTKD SFYNEYSKHA

751

FIG. 10H.

Hmw1.com STGSSLRFKTT SGSTKTGFSSI EKDLTINATG GNITLLQVEG T . DGMIGKG
Hmw2.com SNGANFTLNS HVRGDDAFKII NKDLTINATN SNFSLRQTKD DFYDGYARNA

900						
851	VAAKKNITFK	GGNITFGSQK	ATTEIKGNVT	INKNTNATLR	GANFAEN . . .	
Hmw3.com	INSSHNLTIL	GGNVTLGGEN	SSSSSITGNIN	ITNKKANVTLQ	ADTSNSNTGL	
Hmw4.com	IVAKKNITFE	GGNITFGSRK	AVTEIEGNVT	INNNANVTLI	GSDFFDNHQ . .	
Hmw1.com	INSTYNISIL	GGNVTLGGQN	SSSSSITGNIT	IEKAANVTL	ANNAPNQQNQ	
Hmw2.com						6476

901	Hmw3.com	KSPLNIAGNV	INNGNLTTAG	SIINIAGNLT	VSKGANLQAI	TNYTFNVAGS
950	Hmw4.com	KKRTLTLGNI	SVEGNLSSLTG	ANANIVGNLS	IAEDSTFKGE	ASDNLNITGT
	Hmw1.com	KPLTIKKDVII	INSGNLTTAGG	NIVNIAGNLT	VESMANFKAII	TNFTENVGGL
	Hmw2.com	RDRVTKLGSL	LVNGSLSLTG	ENADIKGNLT	ISESATFKGK	TRDTLNITGN

1000
951

FIG. 101.

Hmw3.com	F DNINGASNIS	I ARGGAKFK.	DINNTSSLNI	T TNSDTTYRT	I IKGNISNKS
Hmw4.com	F TNNGTANIN	I KQGVVKLQG	DINNKGGINI	T TNASGTQKT	I INGNITNEK
Hmw1.com	F DNKGNSNIS	I AKGGARFK.	DIDNSKNLSI	T TNSSSTYRT	I ISGNITNKN
Hmw2.com	F TNNGTAEIN	I TQGVVKLG.	NVTNDGDLNI	T THAKRNQRS	I IGGDIINNK
	1001			1050	
Hmw3.com	GDLNIIIDKKS	DAEIQIGGNI	SQKEGNLTIS	SDKVNITNQI	TIKAGVEGGR
Hmw4.com	GDLNIKNIKA	DAEIQIGGNI	SQKEGNLTIS	SDKVNITNQI	TIKAGVEGGR
Hmw1.com	GDLNITNEGS	DTEMQIGGDI	SQKEGNLTIS	SDKINITKQI	TIKAGVDGEN
Hmw2.com	GSINNITDSNN	DAEIQIGGNI	SQKEGNLTIS	SDKINITKQI	TIKKGIDGED
	1051			1100	
Hmw3.com	SDSSEAENAN	LTIQTKELKL	AGDLNISGFN	KAEITAKNGS	DLTIGNASGG
Hmw4.com	SDSSEAENAN	LTIQTKELKL	AGDLNISGFN	KAEITAKNGS	DLTIGNASGG
Hmw1.com	SDSDATNNAN	LTIKTKELKL	TQDLNISGFN	KAEITAKDGS	DLTIGNTNSA
Hmw2.com	SSSDATSNAN	LTIKTKELKL	TEDLSISGFN	KAEITAKDGR	DLTIGNNSNDG

FIG. 10J.

11101 11150

Hmw3.com	N..ADAKKVT	FDKVKDSKIS	TDGHNVTLNS	EVKT..SNGS	SNAGNDNSTG
Hmw4.com	N..ADAKKVT	FDKVKDSKIS	TDGHNVTLNS	EVKT..SNGS	SNAGNDNSTG
Hmw1.com	D.GTNAKKKVT	FNQVKDSKIS	ADGHKVTLHS	KVETSGSNNN	TEDSSDNNAG
Hmw2.com	NSGAEEAKKKVT	FNNVKDSKIS	ADGHNVTLNS	KVKTSSSSNGG	RESNSDNDTG

1151	Hmw3 com	LTI SAKDVTV	NNNVTSHKTI	NISAAAGNVT	TKEGTTINAT	TGSVEVTAQN	1200
	Hmw4 com	LTI SAKDVTV	NNNVTSHKTI	NISAAAGNVT	TKEGTTINAT	TGSVEVTAQN	
	Hmw1 com	LTI DAKNVTV	NNNITSHKAV	SISATSGEIT	TKTGTTINAT	TGNVEIT . . .	
	Hmw2 com	LTI TAKNVEY	NKDVTSLKTV	NITA, SEKVT	TTAGSTINAT	NGKASIT . . .	

Hmw3.com	GTIKGNITSQ	NVTVTATENL	VTTENAVINA	TSGTGVNISTK	TGDIKGIES
Hmw4.com	GTIKGNITSQ	NVTVTATENL	VTTENAVINA	TSGTGVNISTK	TGDIKGIES
Hmw1.com	.....	.....	.....	.....	AQ

FIG. 10K.
Hmw2 com

Hmw3 com	TSGNVNITAS	GNTLKVSNIT	GQDVTVTADA	GALTTLAGST	ISATTGNANI	1300
Hmw4 com	TSGNVNITAS	GNTLKVSNIT	GQDVTVTADA	GALTTLAGST	ISATTGNANI	
Hmw1 com	SSGSVTLTAT	EGALAVSNIS	GNTVTVTANS	GALTTLAGST	IKG.TESVTT	
Hmw2 com	.....	.....	.....	.....	.....
						67/82
1251						
Hmw3 com	TTKTGADINGK	VESSSGSVTL	VATGATLAVG	NISGNTVVTIT	ADSGKLTSV	
Hmw4 com	TTKTGADINGK	VESSSGSVTL	VATGATLAVG	NISGNTVVTIT	ADSGKLTSV	
Hmw1 com	SSQSGDIG..	.....	.....	.....	ATESLTTQSN	
Hmw2 com	... .GDIS ..	.....	.....	.....	ATVDLTTKSG	
1301						
Hmw3 com	TTKTGADINGK	VESSSGSVTL	VATGATLAVG	NISGNTVVTIT	ADSGKLTSV	
Hmw4 com	TTKTGADINGK	VESSSGSVTL	VATGATLAVG	NISGNTVVTIT	ADSGKLTSV	
Hmw1 com	SSQSGDIG..	.....	.....	.....	.....
Hmw2 com	... .GDIS ..	.....	.....	.....	.....
1351						
Hmw3 com	GSTRINGTNSV	TTSSQSGDIE	GTISGNTVNV	TASTGDLTIG	NSAKVEAKNG	
Hmw4 com	GSTRINGTNSV	TTSSQSGDIE	GTISGNTVNV	TASTGDLTIG	NSAKVEAKNG	
						1400

FIG. 10L.

Hmw1.com SKIKATTGEA NVTSATGTIG GTISGNTVNV TANAGDLTVG NGAEINATEG
Hmw2.com SKIEAKSGEA NVTSATGTIG GTISGNTVNV TANAGDLTVG NGAEINATEG

1401

Hmw3.com AATLTAESGK LTTQQTGSSIT SSNGQTTLTA KDSSIAGNIN AANVTLNNTG
Hmw4.com AATLTAESGK LTTQQTGSSIT SSNGQTTLTA KDSSIAGNIN AANVTLNNTG
Hmw1.com AATLTTSSGK LTTEASSHIT SAKGQQVNLSA QDSSVAGSIN AANVTLNNTG 68/82
Hmw2.com AATLTATGNT LTTEAGSSIT STKGQV DLLA QNSSIAGNIN AANVTLNNTG

1451

Hmw3.com TLTTTGDSKI NATSGTLTIN AKDAKILDGAA SGDRTVVNAT NASGSGNVTA
Hmw4.com TLTTTGDSKI NATSGTLTIN AKDAKILDGAA SGDRTVVNAT NASGSGNVTA
Hmw1.com TLTTVKGSNI NATSGTLTIN AKDAELNGAA LGNHTVVNAT NANGSGSVIA
Hmw2.com TLTTVAGSDI KATSGTLTIN AKDAKILNGDA SGDSTEVNAV NASGSGSVTA

1501

1550

FIG. 10M.

Hmw3 com	KTSSSVNITG	DLNTINGLNI	ISENGRNTVR	LRGKEIDVKY	IOPGVASVEE
Hmw4 com	KTSSSVNITG	DLNTINGLNI	ISENGRNTVR	LRGKEIDVKY	IOPGVASVEE
Hmw1 com	TTSSRVNITG	DLITINGLNI	ISKNGINTVL	LKGVKIDVKY	IOPGIASVDE
Hmw2 com	ATSSSVNITG	DLNTVNGLNI	ISKDGRTNTVR	LRGKEIEVKY	IOPGVASVEE
1551					
Hmw3 com	VIEAKRVL EK	VKDLSDEERE	TLAKLGVS A V	RFVEPNNAIT	VNTQNEFTTK
Hmw4 com	VIEAKRVL EK	VKDLSDEERE	TLAKLGVS A V	RFVEPNNAIT	VNTQNEFTTK
Hmw1 com	VIEAKRVL EK	VKDLSDEERE	ALAKLGVS A V	RFLEPNNIT T	VDTQNEFATR
Hmw2 com	VIEAKRVL EK	VKDLSDEERE	TLAKLGVS A V	RFVEPNNT IT	VNTQNEFTTR
1600					
Hmw3 com	PSSQVTISEG	KACFSSGN GA	RVCTNVADD G	QQ	(SEQ ID No: 9)
Hmw4 com	PSSQVTISEG	KACFSSGN GA	RVCTNVADD G	QQ	(SEQ ID No: 10)
Hmw1 com	PLSRIVISEG	RACFSNSDGA	TVCVNIA DNG R .	(SEQ ID No: 2)	
Hmw2 com	PSSQVI SEG	KACFSSGN GA	RVCTNVADD G	QP	(SEQ ID No: 4)
}					

FIG. 10M.

Hmw3.com	KTSSSVNITG	DLNTINGLNI	ISENKRNTVR	LRGKEIDVKY	IOPGVASVEE
Hmw4.com	KTSSSVNITG	DLNTINGLNI	ISENKRNTVR	LRGKEIDVKY	IOPGVASVEE
Hmw1.com	TTSSRVNITG	DLITINGLNI	ISKNGINTVL	LKGVKIDVKY	IOPGIASVDE
Hmw2.com	ATSSSVNITG	DLNTVNGLNI	ISKDGRNTVR	LRGKEIEVKY	IOPGVASVEE
1551					
Hmw3.com	VIEAKRVLK	VKDLSDEERE	TLAKLGVSAY	RFVEPNNAIT	VNTQNEFTTK
Hmw4.com	VIEAKRVLK	VKDLSDEERE	TLAKLGVSAY	RFVEPNNAIT	VNTQNEFTTK
Hmw1.com	VIEAKRILEK	VKDLSDEERE	ALAKLGVSAY	RFIEPNNITIT	VDTQNEFATR
Hmw2.com	VIEAKRVLK	VKDLSDEERE	TLAKLGVSAY	RFVEPNNTIT	VNTQNEFTTR
1601					
Hmw3.com	PSSQVTISEG	KACFSSGNGA	RVCTNVADDG	QQ	
Hmw4.com	PSSQVTISEG	KACFSSSGNCA	RVCTNVADDG	QQ	
Hmw1.com	PLSRIVISEG	RACFSNSDGA	TVCVNIAADNG	R.	
Hmw2.com	PSSQVIISEG	KACFSSGNGA	RVCTNVADDG	QP	
1632					
Hmw3.com	PSSQVTISEG	KACFSSGNGA	RVCTNVADDG	QQ	
Hmw4.com	PSSQVTISEG	KACFSSSGNCA	RVCTNVADDG	QQ	
Hmw1.com	PLSRIVISEG	RACFSNSDGA	TVCVNIAADNG	R.	
Hmw2.com	PSSQVIISEG	KACFSSGNGA	RVCTNVADDG	QP	

70/82

kDa
200

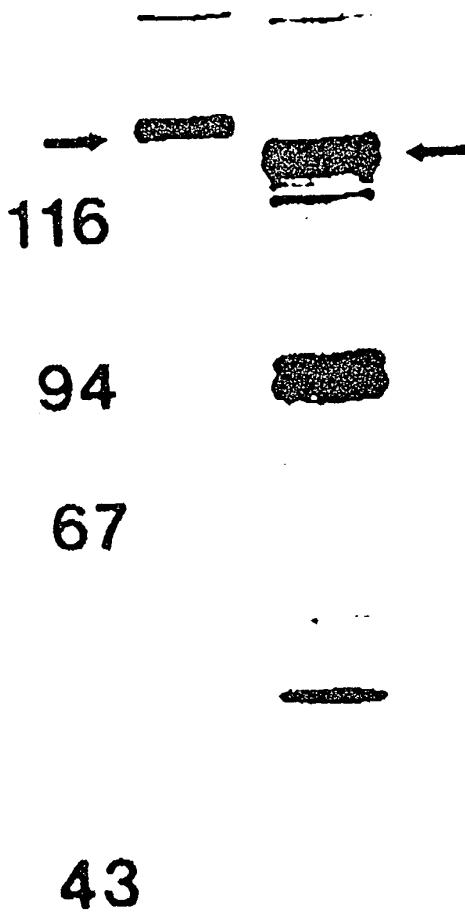
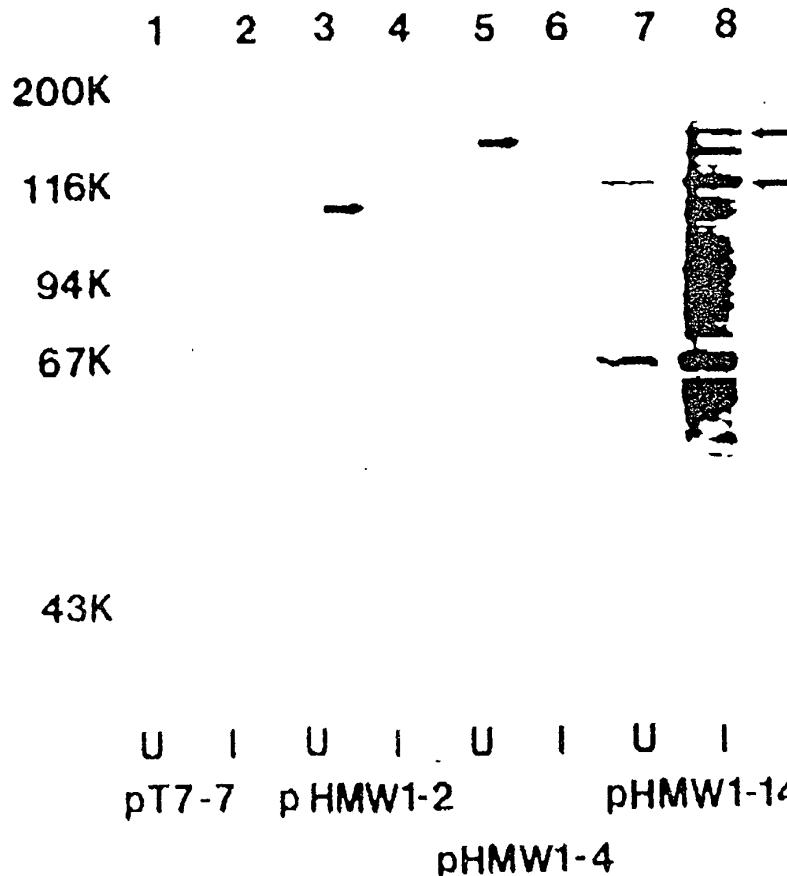


FIG. 11 **HMW 1** **HMW 2**

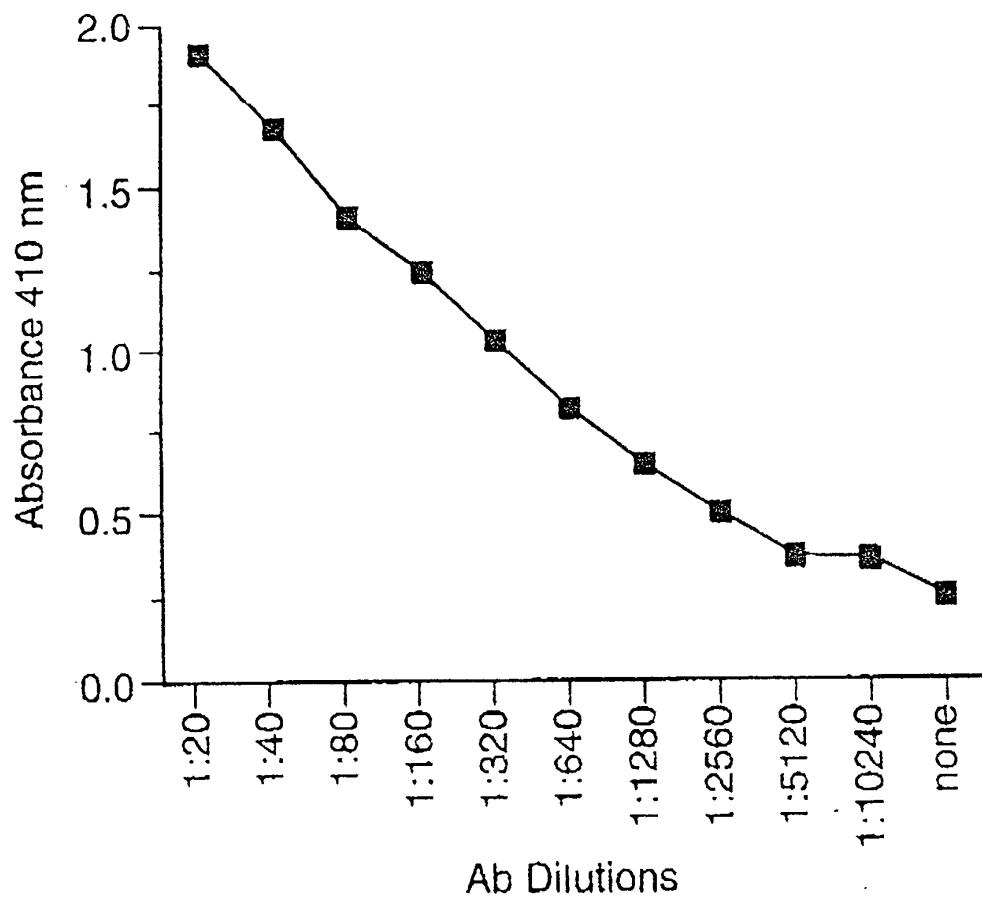
WESTERN IMMUNOBLOT ASSAY OF PHAGE LYSATES CONTAINING EITHER THE HMW1 OR HMW2 RECOMBINANT PROTEINS. LYSATES WERE PROBED WITH AN *E. COLI*-ABSORBED ADULT SERUM SAMPLE WITH HIGH-TITER ANTIBODY AGAINST HIGH-MOLECULAR-WEIGHT PROTEINS. THE ARROWS INDICATE THE MAJOR IMMUNOREACTIVE PROTEIN BANDS OF 125 AND 120 kDa IN THE HMW1 AND HMW2 LYSATES, RESPECTIVELY.

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**FIG. 12**

WESTERN IMMUNOBLOTTING ASSAY OF CELL SONICATES PREPARED FROM *E. COLI* TRANSFORMED WITH PLASMID pT7-7 (LANES 1 AND 2) pHMW1-2 (LANES 3 AND 4), pHMW1-4 (LANES 5 AND 6), OR pHMW1-14 (LANES 7 AND 8). THE SONICATES WERE PROBED WITH AN *E. COLI* ABSORBED ADULT SERUM SAMPLE WITH HIGH - TITER ANTIBODY AGAINST HIGH - MOLECULAR - WEIGHT PROTEINS. LANES LABELED U AND I REPRESENT SONICATES PREPARED BEFORE AND AFTER INDUCTION OF THE GROWING SAMPLES WITH IPTG, RESPECTIVELY. THE ARROWS INDICATE PROTEIN BANDS OF INTEREST AS DESCRIBED IN THE TEXT.

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**FIG. 13**

ELISA WITH rHMW1 ANTISERUM ASSAYED AGAINST PURIFIED FILAMENTOUS HEMAGGLUTININ OF *B. PERTUSSIS*. Ab, ANTIBODY.

AMENDED SHEET

73/82

200K



116K

94K

67K

43K

5 7 12 14 15 16 17 18

FIG. 14

WESTERN IMMUNOBLOT ASSAY OF CELL SONICATES FROM A PANEL OF EPIDEMIOLOGICALLY UNRELATED NONTYPEABLE *H. INFLUENZAE* STRAINS. THE SONICATES WERE PROBED WITH RABBIT ANTISERUM PREPARED AGAINST HMW1-4 RECOMBINANT PROTEIN. THE STRAIN DESIGNATIONS ARE INDICATED BY THE NUMBERS BELOW EACH LANE.

AMENDED SHEET,

74 / 82

200K

116K

94K

67K

43K

5 7 12 14 15 16 17 18

FIG. 15

WESTERN IMMUNOBLOT ASSAY OF CELL SONICATES FROM A PANEL OF EPIDEMIOLOGICALLY UNRELATED NONTYPEABLE H. INFLUENZAE STRAINS. THE SONICATES WERE PROBED WITH MONOCLONAL ANTIBODY X3C, A MURINE IgG ANTIBODY WHICH RECOGNIZES THE FILAMENTOUS HEMAGGLUTININ OF B. PERTUSSIS (13). THE STRAIN DESIGNATIONS ARE INDICATED BY THE NUMBERS BELOW EACH LANE.

AMENDED SHEET

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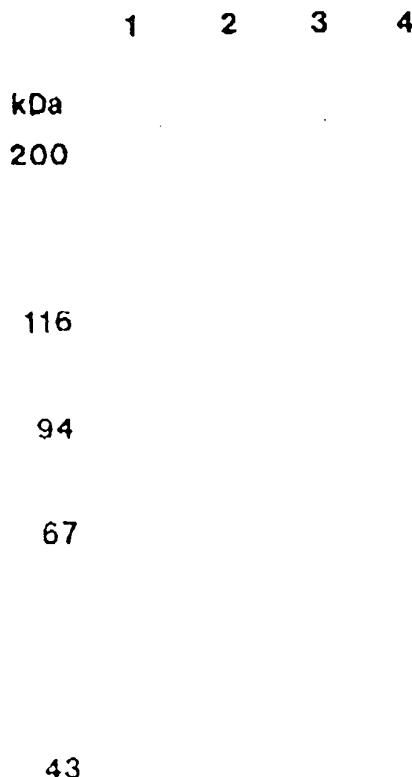
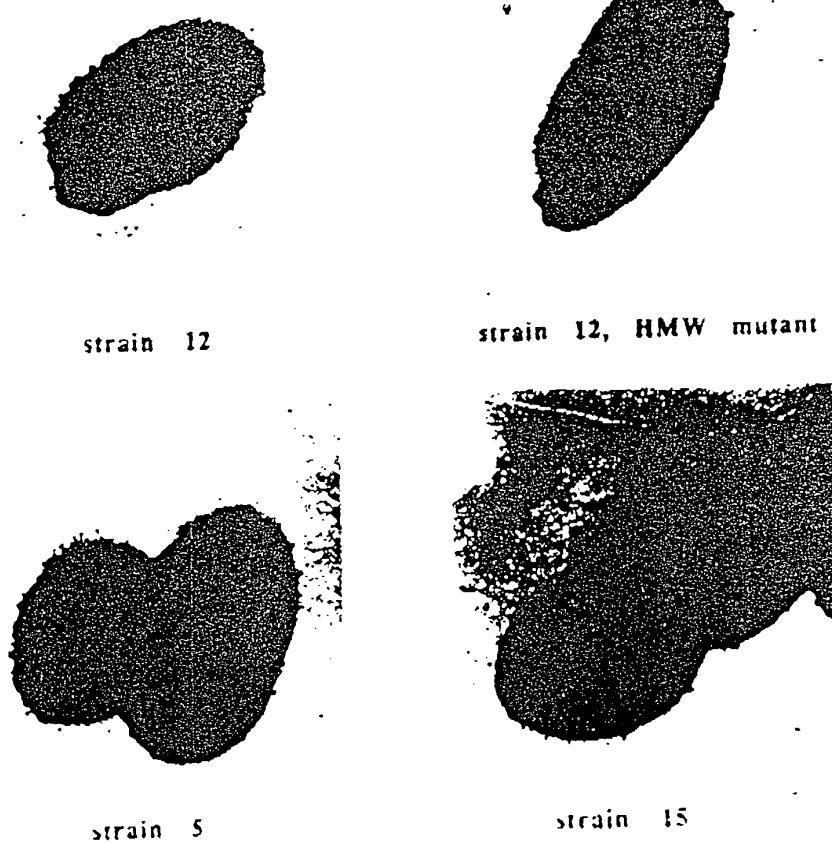


FIG. 16

IMMUNOBLOT ASSAY OF CELL SONICATES OF NONTYPABLE *H. INFLUENZAE* STRAIN 12 DERIVATIVES. THE SONICATES WERE PROBED WITH RABBIT ANTISERUM PREPARED AGAINST HMW-1 RECOMBINANT PROTEIN. LANES: 1, WILD-TYPE STRAIN; 2, HMW-2⁻ MUTANT; 3, HMW-1⁻ MUTANT; 4, HMW-1⁻ / HMW-2⁻ DOUBLE MUTANT.

AMENDED SHEET

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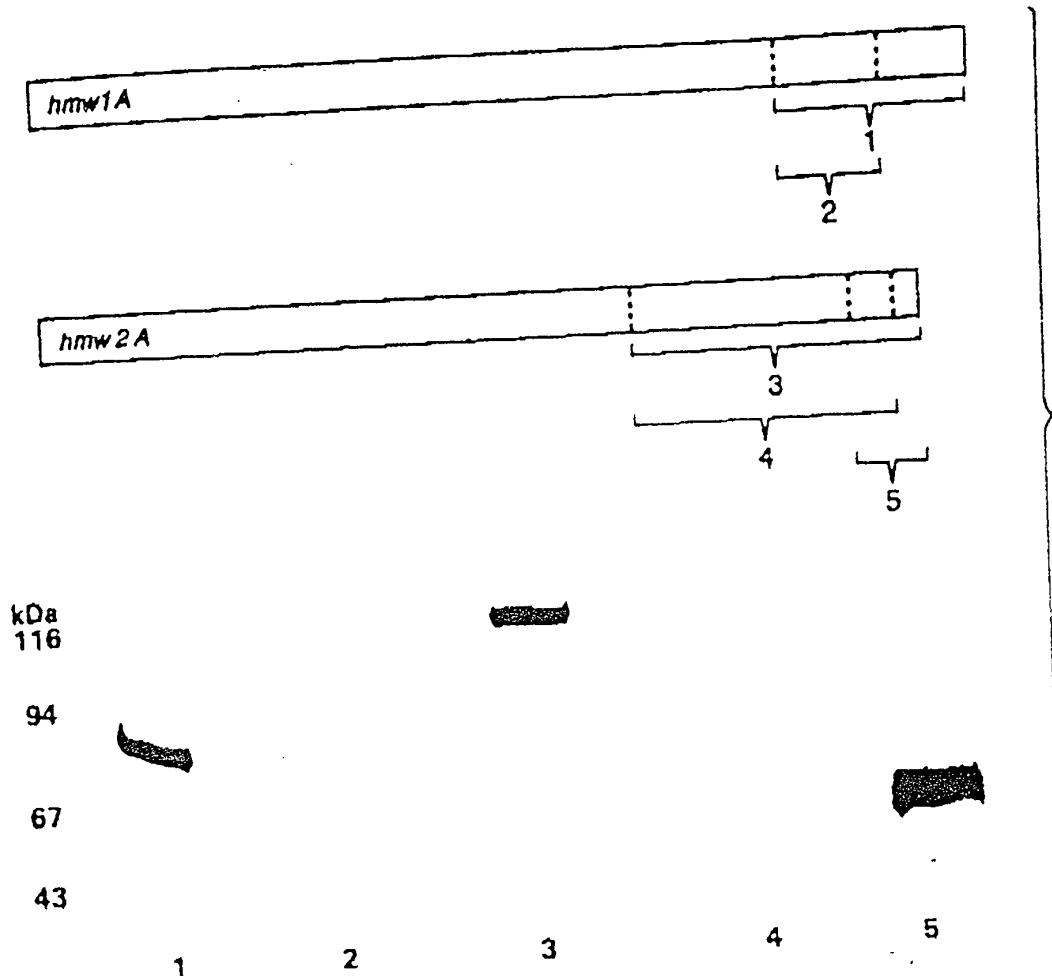


IMMUNOELECTRON MICROSCOPY WITH Mab AD6

FIG.20

AMENDED SHEET

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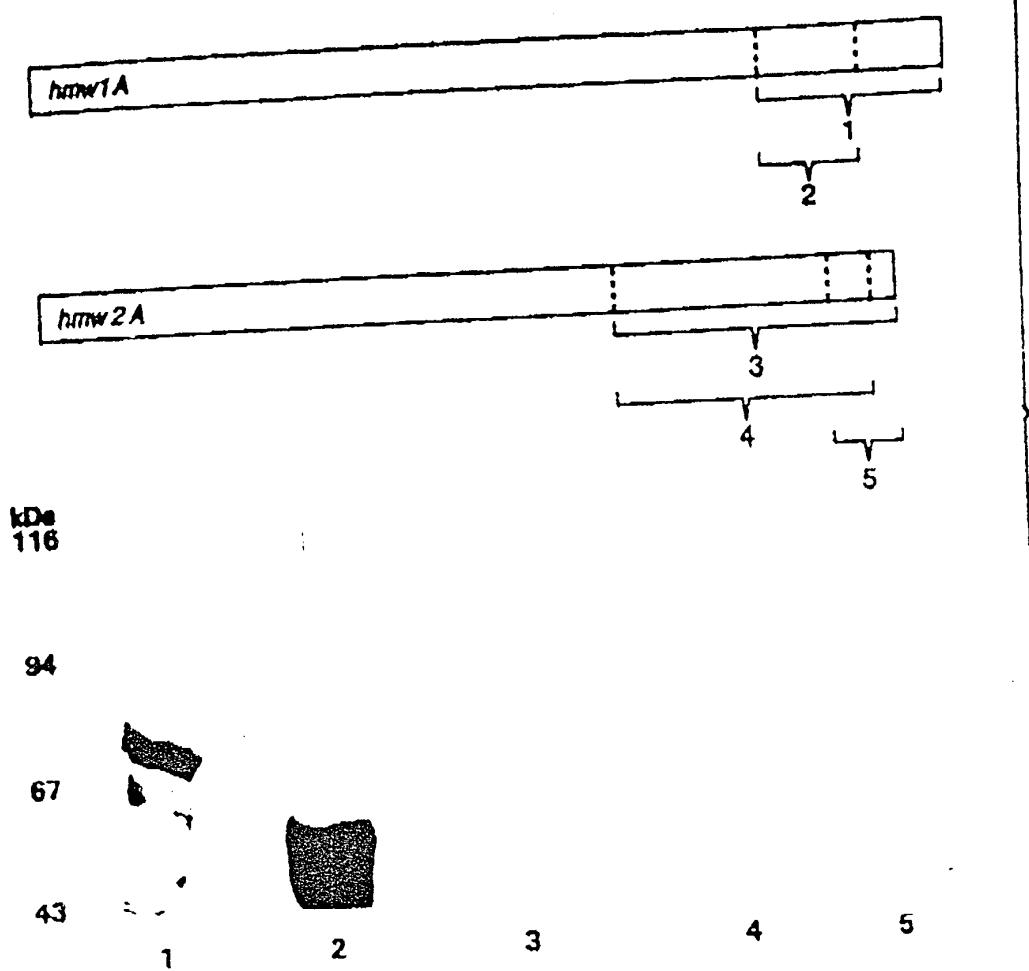


WESTERN IMMUNOBLOT ASSAY WITH Mab AD6 AND
HMW1A OR HMW2A RECOMBINANT PROTEINS

FIG.21

AMENDED SHEET

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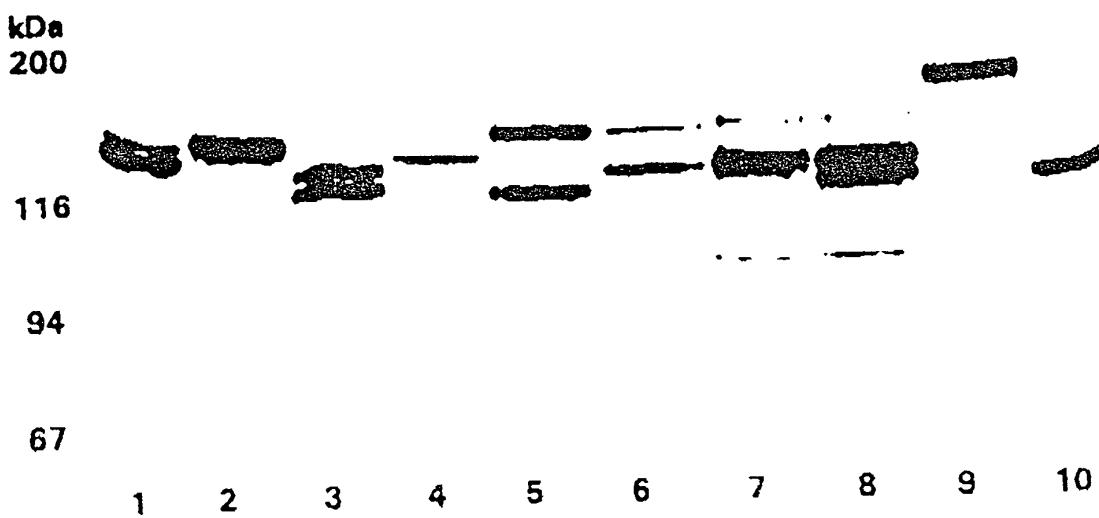


WESTERN IMMUNOBLOT ASSAY WITH Mab 10C5 AND
HMW1A OR HMW2A RECOMBINANT PROTEINS

FIG.22

AMENDED SHEET

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WESTERN IMMUNOBLOT ASSAY WITH Mab AD6 AND
TEN UNRELATED NONTYPABLE *HAEMOPHILUS*
INFLUENZAE

FIG.23

AMENDED SHEET